Guidehouse

Rhode Island 2020 Energy Efficiency Workforce Analysis Report

Prepared for:

nationalgrid

National Grid

Submitted by:

Guidehouse Inc.
77 S. Bedford St., Suite #400
Burlington, MA 01803
Telephone 978.697.0978
jeremy.newberger@guidehouse.com

Reference No.: 214518
April 28, 2021

Table of Contents

List of Tables

List of Figures

Disclaimer

This report was prepared by Guidehouse Inc ("Guidehouse") for National Grid. The work presented in this report represents Guidehouse's professional judgment based on the information available at the time this report was prepared. Guidehouse is not responsible for the reader's use of, or reliance upon, the report, nor any decisions based on the report. GUIDEHOUSE MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESSED OR IMPLIED. Readers of the report are advised that they assume all liabilities incurred by them, or third parties, as a result of their reliance on the report, or the data, information, findings and opinions contained in the report.

Acknowledgement

For the six years prior to 2019 (i.e., 2013 – 2018), Peregrine Energy Group had performed the FTE analysis and composed the reports associated. Sections of this report have been adapted from the 2018 study: "Analysis and Recommendations regarding the Current and Future Workforce Associated with 2018 Rhode Island Energy Efficiency Programs"[1] completed by Peregrine. The use of text is done with permission from Peregrine and National Grid. Specifically, portions of the Executive Summary, Introduction, The Energy Efficiency Workforce, Providers and Employees Analysis sections were adapted from the 2018 study for this report. Additionally, as described in more detail throughout the report, the 2020 FTE analysis relied on scaling the 2019 FTE count, which was scaled based on the 2018 FTE count done by Peregrine Energy Group. The detailed description of the 2018 methodology in Attachment A was reproduced from the 2018 report. This meant that the 2018 methodology was embedded within Guidehouse's 2020 counts. When describing this embedded methodology, wording from the 2018 report was used. Where sections from the 2018 study have been adapted, a footnote after the header makes this explicit.

[1] 2018 Study: "Analysis and Recommendations regarding the Current and Future Workforce Associated with 2018 Rhode Island Energy Efficiency Programs," accessed at http://rieermc.ri.gov/wp-content/uploads/2020/07/2018-attachment-5-workforce-report-final.pdf.

Executive Summary

National Grid engaged Guidehouse to estimate the workforce associated with implementation of National Grid Rhode Island's electric and gas energy efficiency programs delivered in 2020. This study addresses the requirements of General Law 39-2-1.2, enacted by the Rhode Island General Assembly in 2012. In 2020, National Grid spent a combined $112,665,924 on the Rhode Island programs that saved 157,346 annual megawatt hours (MWh) of electricity[2] and 318,845 million British thermal units (MMBtu) of natural gas. The measures installed during 2020 will save Rhode Island customers 1,299,159 MWh and 2,960,120 MMBtu over the lifetime of the measures.

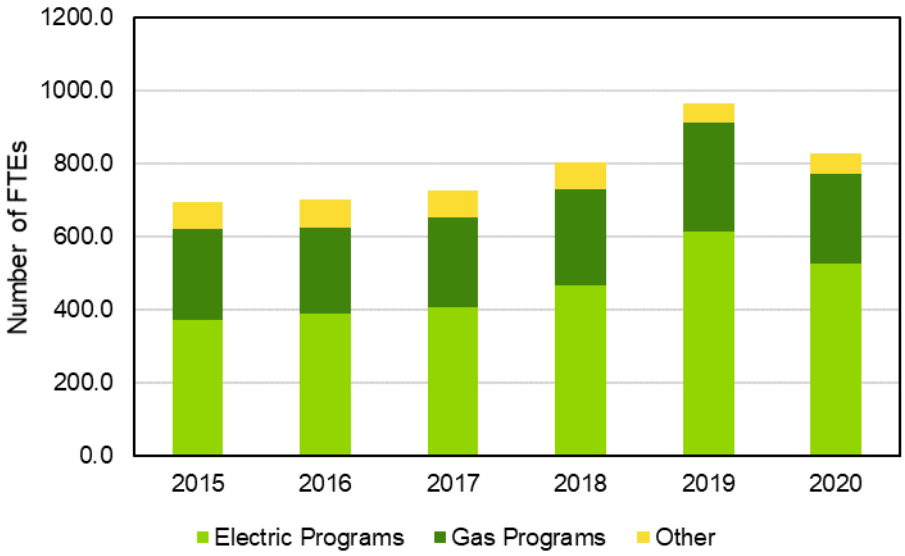
The focus of this study is to quantify the workforce that was involved in delivering National Grid's Rhode Island programs in 2020. The workforce analysis reports the number of jobs associated with the programs and compares them to past years. Guidehouse calculated 827.5 full-time equivalent (FTE) workers associated with National Grid spending in 2020 for Rhode Island programs.[3] Since an FTE employee often represents the combined labors of more than one person over the course of a year, the number of individual workers exceeds the number of FTEs by a significant amount. At a high level, spending for energy efficiency programs in Rhode Island decreased from 2019 to 2020, leading to decreased activity and therefore a decrease in FTEs among the associated workforce.

Guidehouse's basic approach for determining 2020 FTEs was to scale 2019 FTEs by program spending in 2020 relative to 2019. Where sufficient information was available, Guidehouse made manual adjustments to this calculation. As a result, there was a less significant decrease in FTEs observed across residential programs when compared to commercial programs. This was because more manual adjustments (based on vendor interview findings) were done to the residential program FTEs. By nature, the commercial programs have a larger number of vendors associated with them. Therefore, for the commercial programs, the vendor interviews represent a small sample of the workforce, instead of encompassing the a large fraction of the workforce associated with a program, which is the case for some of the residential programs. Though Guidehouse did not have the opportunity to interview all of the commercial program vendors, which made completing manual adjustments to FTEs difficult, interview findings from the sample of commercial vendors that were interviewed supported the trends observed by scaling program FTEs based on spending.

An overview of the quantitative FTE findings of this report are shown by sector in Figure 1-1 and Table 1-1. Figure 1-1 and Figure 1-2 show the trends of FTE jobs by market sector (residential, residential income-eligible, and commercial and industrial) from 2015 to 2020 for electric and natural gas, respectively.

[2] Note that although the savings are not quantified here, the electric portfolio also includes delivery of energy efficiency services to customers that heat with delivered fuels.
[3] As indicated in Appendix C, most vendors are either headquartered or have a physical presence in Rhode Island. The number of FTEs reported do not include customer employees who assist in various ways with project implementation in their own facilities.

Figure 1-1. Summary of FTEs (2015-2020)[4]



Source: Guidehouse analysis and 2018 study

[4] "Other" refers to FTEs that are associated with multiple different programs across both the gas and electric sectors, such as marketing, the National Grid workforce and, for 2020, COVID-19 training.

Table 1-1 Summary of FTEs (2015-2020)

	2015	2016	2017	2018	2019	2020
Electric Programs						
Commercial and Industrial	210.0	241.1	263.5	250.0	265.0	203.7
Residential Income Eligible	37.0	42.3	46.0	45.8	65.1	59.1
Residential Non-Income Eligible	125.4	104.0	98.1	168.9[5]	284.8[6]	263.7
Gas Programs						
Commercial and Industrial	32.0	36.1	34.4	31.9	28.7	19.8
Residential Income Eligible	43.8	41.4	36.5	39.4	56.2	38.5
Residential Non-Income Eligible	172.1	159.3	174.9	191.6	212.6	189.2
Other						
CAP Agencies[7]	34.0	38.0	35.0	35.0		
National Grid[8]	41.6	39.9	38.2	39.5	43.3	44.4
Marketing[9]					9.0[10]	9.0
COVID-19 Training						0.3
Total	**695.8**	**702.2**	**726.5**	**802.1**	**964.6**	**827.5**

Source: Guidehouse analysis and 2018 study

[5] The total for Residential Non-Income Eligible Electric FTEs in 2018 was incorrectly totaled from the component programs and was shown in previous reports at 170.9, when it should have been 168.9. With this correction, the total number of FTEs in 2018 is 802.1. This change has been reflected in Table 2.

[6] Guidehouse updated the 2019 EnergyWise and EnergyWise Multifamily FTEs based on interviews with RISE on February 24, 2021, March 2, 2021 and written communication with RISE on April 1, 2021. RISE indicated there were 224 FTEs from trade allies associated with the EnergyWise program in 2019. Guidehouse believes these FTEs were not accurately captured in 2019 and in the years prior. This has caused the significant increase in FTEs from 2018 to 2019. RISE indicated there were 20 FTEs from RISE and 15 FTEs from subcontractors associated with the gas and electric EnergyWise Multifamily program in 2019. Guidehouse adjusted the 2019 gas and electric FTEs associated with the EnergyWise Multifamily program to align with the information received from RISE in the 2021 interview. Although this re-estimation of FTEs might also be associated with analyses prior to 2019, since Guidehouse did not prepare these analyses, it did not change any FTEs associated with the EnergyWise program prior to 2019.

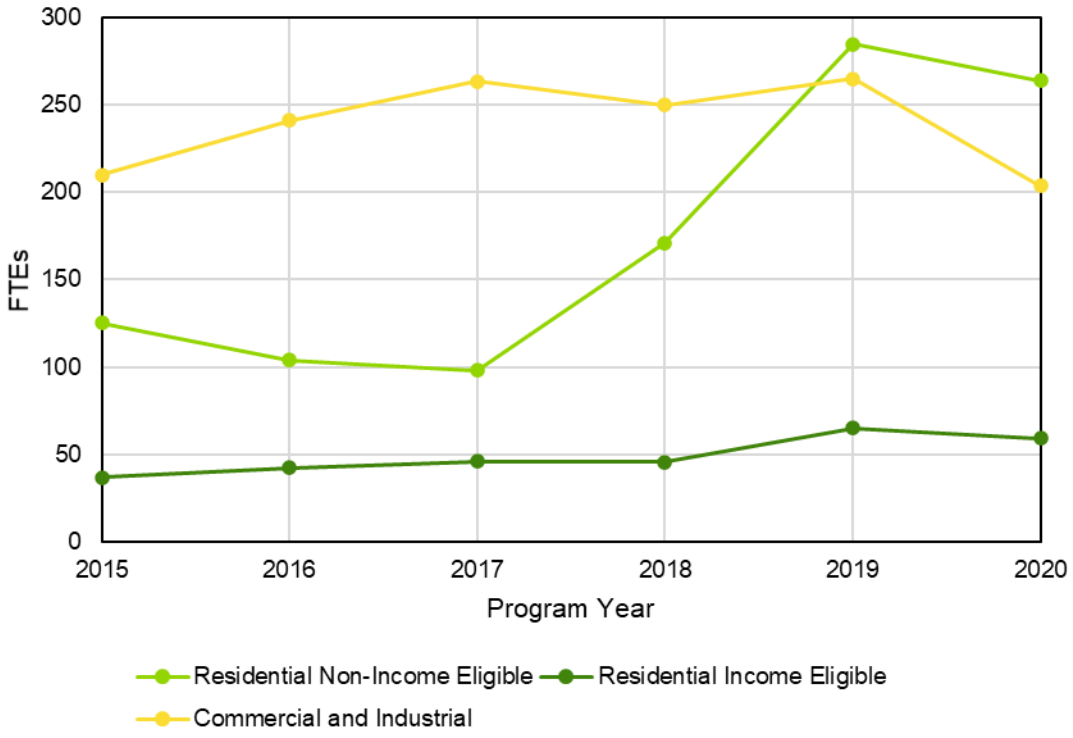
[7] Note that for the 2019 and 2020 analysis, CAP Agency staff were included within the Residential Income Eligible program under both Electric and Gas.

[8] In years prior to 2019 a 2,016-hour work year was assumed when calculating FTEs. National Grid changed this assumption in recent years to a 1,768-hour work year. This new assumption was implemented beginning in 2019 and resulted in a slight increase in FTEs.

[9] Beginning in 2019, marketing was contracted to a new vendor, resulting in an increase in jobs; these are therefore shown separately.

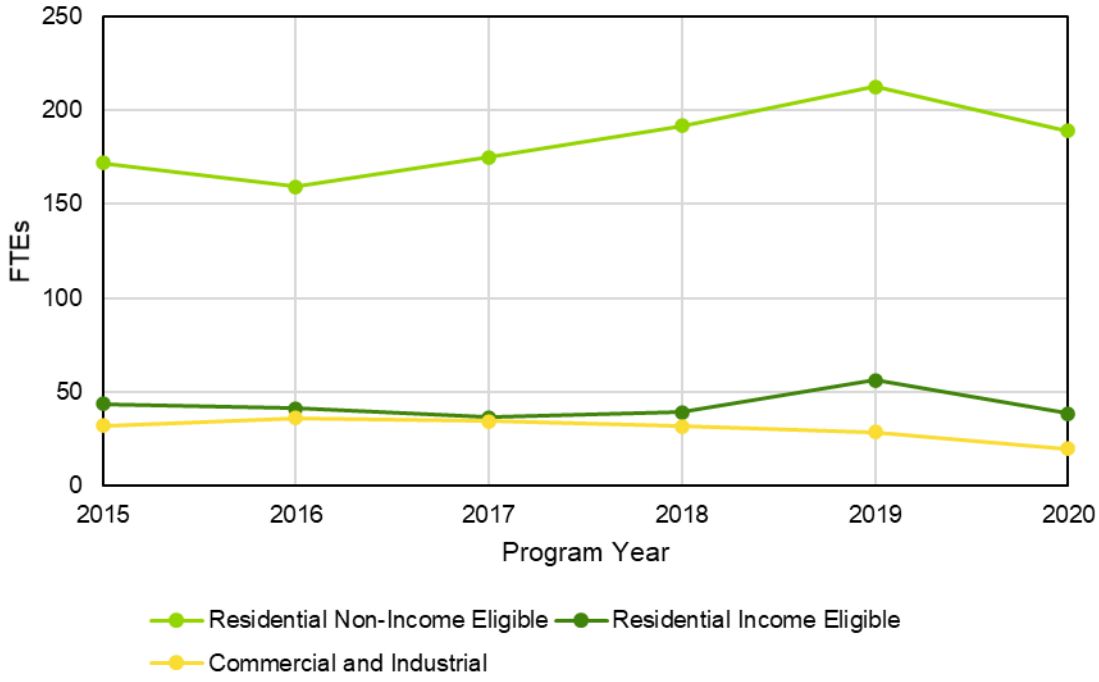
[10] In the interview with the marketing agency, Mower, on March 12, 2021, Guidehouse discovered there had been a miscommunication in the number of FTEs during the interview with Mower in 2020. Mower had provided the number of FTEs for National Grid programs across all the states the programs run in, not just Rhode Island. There was no reported change in the number of FTEs associated with the Rhode Island National Grid Rhode Island energy efficiency programs in 2020 when compared to 2019, so Guidehouse adjusted the 2019 value to 9 FTEs.

Figure 1-2 Electric Program FTEs (2015-2020)



Source: Guidehouse analysis for 2019 and 2020, and 2018 study

Figure 1-3 Gas Program FTEs (2015-2020)



Source: Guidehouse analysis for 2019 and 2020, and 2018 study

The success of the delivery of the National Grid programs is dependent on the efforts of many workers in different roles. Two main types of service providers are identified in the report: support service providers and direct service providers. Support service providers include program design and planning consultants, marketers, rebate processors, and evaluators. These FTEs are usually embedded within the broader reported number for the program. Direct service providers are workers who are contracted by National Grid to execute a given program. The report provides a description of every National Grid program, as well as the company responsible for the delivery of the program.

In March of 2020, COVID-19 was declared a global pandemic. This had a significant impact on the operations of the Energy Efficiency programs in Rhode Island in 2020. Many of the program shut down for three months in the spring and early summer. Some programs were able to adapt to the inability to do anything in person and keep operating, but the workforce associated with some programs had to be furloughed. The majority of vendors interviewed throughout this study indicated there were no permanent job losses among their staff due to COVID-19, even if there were furloughs. Therefore, for the purposes of this study, Guidehouse used the FTEs provided by vendors for the end of 2020. This meant only permanent job losses among the vendor's staff were captured, and not temporary layoffs or furloughs. Additionally, it is important to note that multiple vendors also indicated that throughout the pandemic there has been no recorded transmission of COVID-19 linked to an employee working on the Rhode Island Energy Efficiency programs and a customer.

National Grid programs and delivery strategies were substantively the same in 2020 as they had been in 2019. This is due, in part, to 2020 being the third year of the three-year Least Cost Procurement Plan for 2018-2020. However, there were some differences that resulted in increases and decreases of FTEs across the various programs. Interviewed vendors indicated that increases occurred due to new program offerings or initiatives, increased spending, and as a result of a higher number of residential projects occurring across some programs as a result of people staying home in 2020 due to the COVID-19 pandemic and becoming more interested in financial savings associated with the programs, as well as having more time to focus home upgrades. Guidehouse's interviews and analysis indicate the adaptability of the workforce during the pandemic to respond to the limitations on customer interactions while still responding to a sustained demand for energy efficiency. Certain program FTEs decreased in part due to suspected market saturation, either with customers or with the measures themselves and due to turnover in the workforce and a lag in worker replacement. Additionally, some programs FTEs decreased because of prolonged layoffs due to COVID-19.

Guidehouse also prepared a "counterfactual" analysis for this report of what FTEs might have been if not for the pandemic. This is presented in Section 7 of this report.

1. Introduction

As mandated by and with the formal approval of the State of Rhode Island, National Grid delivers a state-approved portfolio of energy efficiency programs and services referred to in state enabling legislation as "demand-side management programs"[11] (the programs) to all market sectors it serves in Rhode Island, funded by ratepayers primarily through electric and gas utility rate surcharges and supplemented by other funding sources, including Forward Capacity Market revenue. The Rhode Island programs focus on both new construction and retrofit of existing buildings. Programs deliver cost-effective services and energy savings to building owners and tenants, to residential customers residing in single-family and multifamily buildings, to government and non-profit institutions, to small and large commercial businesses, and to manufacturers.

Overall, the 2020 program offerings were similar to those in 2019, with the addition of some new programs. Spending in 2020 decreased when compared to 2019. In 2020, National Grid spent a total of $112,665,924 on electric and gas energy efficiency programs in Rhode Island, a 19% decrease when compared to 2019. Twenty-one percent of 2020 Program expenditures, $24,097,931, was for gas programs, while 79%, $88,567,993 was for electric programs.[12] These programs created 318,845 million British thermal units (MMBtu) of natural gas savings and 157,346 megawatt hours (MWh) of electricity savings).[13]

Rhode Island General Law 39-2-1.2(k), enacted by the Rhode Island General Assembly in 2012, requires that

> Each year, the office [RI Office of Energy Resources] and the council [EERMC] shall submit to the governor, the president of the senate, and the speaker of the house of representatives, separate financial and performance reports regarding the demand-side management programs, including the specific level of funds that were contributed by the residential, municipal, and commercial and industrial sectors to the overall programs; the businesses, vendors, and institutions that received funding from demand-side management gas and electric funds used for the purposes in this section; and the businesses, vendors, and institutions that received the administrative funds.

In fulfillment of this requirement, National Grid has prepared for submission several financial and performance reports on the programs and has developed a list of businesses, vendors, and institutions that received funding from program funds, as well as businesses, vendors, and institutions that received administrative funds. In addition to fulfilling the specific financial and performance reporting requirements, National Grid has undertaken and is submitting this "Rhode Island 2020 Energy Efficiency Workforce Analysis Report". This is the seventh consecutive year that National Grid has provided a narrative report describing the jobs associated with these expenditures and the workforce that delivers the energy efficiency programs offered.

Although employment directly associated with National Grid programs is not a formal program goal, it is a significant additional economic benefit that investments in energy efficiency

[11] Rhode Island General Laws § 39-2-1.2(b).
[12] The Narragansett Electric Company d/b/a National Grid, 2020 Energy Efficiency Year End Report and 2019 Year End Spend.
[13] The Narragansett Electric Company d/b/a National Grid, 2020 Energy Efficiency Year End Report.

contribute to Rhode Island and to participating businesses. Furthermore, without the availability and contributions of a workforce to deliver programs, identify opportunities for energy efficiency, and install energy efficiency improvements, the demand-side savings that R.I. General Law 39-2-1.2 is intended to create would largely not occur. The report describes the work and workforce associated with program development, design, marketing, management, delivery, and evaluation and attempts to estimate the number of jobs directly associated with National Grid's 2020 expenditures for programs that originate from energy efficiency funding sources. Accurately calculating the numbers of these jobs is challenging since it depends on the number and types of employees engaged, be they full-time or part-time, and numbers of hours worked to deliver programs, which may be captured by employers for payroll and business planning, but is not typically reported to National Grid unless for billing purposes.

This report builds on Rhode Island workforce studies performed by Peregrine Energy Group for 2013 to 2018, as well as the 2019 workforce study performed by Guidehouse. Please see section 6.1, "Overview of Methodology," for more details on how the FTEs for the 2020 workforce study were calculated. As in prior years, Guidehouse is presenting workforce counts as "full-time equivalent" (FTE) employees. It is assumed for the purpose of this study, as in past years, that one FTE equals 1,768 actual work hours regardless of job responsibility (in addition to vacation, sick, holidays or other leave time), or the equivalent of one person working eight hours a day for 220 work days in an average year. In many instances, each FTE counted as associated with a National Grid program represents the actual part-time labors of multiple individuals who are associated with delivery of programs in Rhode Island, but also may be engaged in other work-related endeavors.

For the purpose of this study, the workforce engaged in program delivery does not "result from" the programs, but rather is "associated with" the energy efficiency programs. While Guidehouse can confirm that program budgets have funded employers with whom National Grid has contracted to support 2020 programs, no information regarding participants' motivation for replacing older inefficient equipment with new efficient equipment was provided. Therefore, to eliminate the question of causality, FTE counts are shown as employment "associated with" the programs, rather than "resulting from."

Several pieces of information were required to produce the findings presented in this report. Guidehouse used the following methodology to determine the 2020 FTEs:

1. Guidehouse scaled the 2019 FTEs developed by Guidehouse to 2020 FTEs by using the ratio of each program's spending for 2019 and 2020[14], with 2020 spending adjusted downward by 2% per year to account for inflation effects; hence, both the 2019 and the 2020 spending values are in 2018 dollars. The ratio of 2020 spending to 2019 spending for each program was multiplied by the 2019 FTEs for that program to get an initial 2020 FTE value. This approach is valid because 2020 was the third year of a three-year program and no major changes unrelated to the COVID-19 pandemic occurred in the design or delivery of the overwhelming majority of programs, meaning that any change in spending likely could have resulted in a change in FTE's.
2. Guidehouse did not hear from vendor interviews that the pandemic changed the relationship between the program spending and FTEs at the individual program level. However, the pandemic influenced changes in some programs due to the increase in

[14] Spending information from The Narragansett Electric Company d/b/a National Grid, 2020 Energy Efficiency Year End Report.

virtual interactions. For these programs, Guidehouse made manual adjustments to the program FTEs where this had a significant impact.

3. Guidehouse conducted several interviews with both vendors contracted by National Grid as well as different National Grid employees; a total of 19 vendor interviews and 7 National Grid interviews were conducted. The information gathered in these interviews was used to either confirm or adjust the values calculated through scaling. The interviews helped informed Guidehouse on the program changes that occurred in 2020 due to the COVID-19 pandemic and make the necessary adjustments to the FTEs based on the effects of the pandemic on the workforce.
4. Vendor spending provided by National Grid was used to ensure FTEs reported by specific vendors were reasonable.

The sections that follow describe the Energy Efficiency Workforce, details about Support Services and Direct Service Providers, Analysis of Workforce FTEs, and Qualitative Findings and Observations.

The global pandemic that struck the world in 2019, known as COVID-19, had a significant impact on the operations of the Energy Efficiency programs in Rhode Island in 2020. The impact the pandemic had on the workforce is discussed throughout the report. Overall, the programs displayed significant resilience and adaptability when it came to their program operations in 2020. It is important to note that multiple vendors indicated that throughout the pandemic there has been no recorded transmission of COVID-19 linked to an employee working on the Rhode Island Energy Efficiency programs and a customer.

2. The Energy Efficiency Workforce[15]

Guidehouse found that in 2020 an estimated **827.5** full-time equivalent jobs or "FTEs" were associated with National Grid programs in Rhode Island. A "full-time equivalent" employee often represents the combined labors of more than one person over the course of a year. The actual numbers of individual workers associated with program expenditures is far greater than the total number of FTEs.

Guidehouse recognizes two main categories of employers/employees that participate in delivery of National Grid's programs. They are characterized as "Support Services Providers" and "Direct Services Providers." The following section describes these two segments in more detail, followed by a description of how the analysis of FTEs associated with each type of provider was performed.

2.1 Support Services Providers

Support services providers are employers and employees involved in Program planning, administration, marketing, rebate processing, evaluation, and market research. Support services providers include:

- National Grid employees directly involved in energy efficiency program design and delivery, including regulatory matters, administrative management of contractors, marketing, some elements of customer education, and evaluation;
- Entities under contract to National Grid who provide marketing, outreach, public information, and other related services, including media placement and design of collateral marketing materials;
- Specialized firms that process rebate or incentive applications and make payments to contractors, distributors, and manufacturers that promote, provide, purchase, or install targeted high efficiency equipment;
- Independent program design consultants who assist National Grid with creation of annual program strategies, plans, and goals; and
- Evaluators of National Grid Program performance against those annual goals.

2.2 Direct Services Providers

The Direct Services Providers are specialized firms, sometimes contracted directly to National Grid, that may provide some or all of the following Program services: promoting, managing, and delivering individual Rhode Island energy efficiency programs; contributing engineering and other technical support to energy efficiency project development; supplying and/or installing energy saving material and equipment, and providing quality assurance inspections. This category includes, but is not limited to:

[15] This section is adapted from the 2018 study "Analysis and Recommendations regarding the Current and Future Workforce Associated with 2018 Rhode Island Energy Efficiency Programs", accessed at http://rieermc.ri.gov/wp-content/uploads/2020/07/2018-attachment-5-workforce-report-final.pdf. The use of text is done with the permission of Peregrine Energy Group and National Grid.

- National Grid account managers who provide outreach and direct technical assistance to customers, particularly for large commercial and industrial retrofits and new construction.[16]
- Energy services companies specializing in providing field services and installation program management - National Grid has contracts with such firms to deliver individual programs to particular market sectors. In this capacity, they will often provide a "turnkey" service that includes: outreach and intake of customer requests; scheduling site visits; technical assistance; engineering; material and equipment installations; referrals to and engagements with trades people; administration, management and supervision; warehouse materials purchasing and handling; quality assurance inspections; bookkeeping; and data entry and tracking.
- Companies specializing in logistical management and support - These firms engage, manage, and coordinate product suppliers and distributors, retail store offerings, and service networks. These firms often manage similar programs in both Rhode Island and Massachusetts to achieve acceptable economies of scale. They may work out of a Massachusetts office, but will spend significant time in Rhode Island working with local businesses.
- Electrical and mechanical engineers employed by contracted consulting firms - National Grid assigns and dispatches technical specialists to identify potential projects in customer facilities, quantify potential costs and savings, recommend actions that customers should take, and perform post-installation inspections to ensure that installed measures are performing as intended. The larger firms with the greatest capacity to provide these services are often based in Massachusetts, where there is a higher volume of business opportunity and activity.
- Equipment suppliers and retailers - National Grid encourages and provides incentives to equipment distributors, suppliers, and retailers throughout the Rhode Island service territory to market and sell targeted energy efficient equipment and materials directly to National Grid customers and installation contractors. An increasing number of suppliers and installation contractors participate in National Grid-sponsored "upstream" point-of-sale programs offering instant rebates. These equipment suppliers and retailers typically have Rhode Island storefronts, though they may be part of a regional or national business entity.
- Project expediters - These are businesses that support National Grid Rhode Island initiatives that target both small and large commercial/industrial, institutional, and municipal customers. Many of these firms operate in Massachusetts as well as Rhode Island and, over time, some of the largest have extended their business activities regionally and nationally. They are primarily sales and project management organizations that rely heavily on independent subcontractors and tradespersons to perform installations. Generally, the more comprehensive their technology capabilities are, the more attractive they are to National Grid since they can provide a more comprehensive service to National Grid customers.
- Independent installation contractors - These are contractors in the field installing energy efficient equipment and approved materials for National Grid customers. They are typically based in Rhode Island, though some may operate out of offices in neighboring Massachusetts and Connecticut. They include Rhode Island-licensed electricians, plumbers, pipe fitters, and refrigeration experts, as well as other specialists such as weatherization contractors. Many of these installation contractors are active in more than

[16]National Grid is included as both a Support Services Provider and a Direct Services Provider because of the many different roles it has in the programs. Therefore, all National Grid FTEs are segregated and presented in a separate category, rather than integrated into FTE counts for markets and programs.

one market sector, sometimes as subcontractors to National Grid-designated program leads or to Project Expeditors (“PEX”), but also increasingly as self-directed installation vendors.

- Quality assurance inspectors - National Grid also contracts with inspectors that are independent of service delivery contractors who are responsible for installing equipment. The inspectors check a sample of completed installations or a sample of energy efficient equipment acquired by point-of-sale purchasers to ensure that program standards are being met, equipment is installed properly, and projected savings will likely be realized. Again, because of the similarities across state lines and cost efficiencies, National Grid will typically award Rhode Island inspections to the same firm providing this service for Massachusetts.

3. Support Services Providers Analysis[17]

The following section describes different support services and the entity responsible for its delivery.

3.1 EERMC Program Design and Planning Consultants

The Rhode Island Energy Efficiency and Resource Management Council (EERMC) has statutory oversight responsibilities for National Grid's energy efficiency programs including planning, program design, and evaluation. To help them with these responsibilities, the EERMC hires consultants to assist it in the performance of its responsibilities.

Delivery

Optimal Energy (Optimal), with the support of multiple specialized subcontractors, served as the primary consultants to Rhode Island's EERMC in 2020 and collaborated with National Grid on program design and development. Optimal, though headquartered in Hinesburg, Vermont, primarily serves Rhode Island from a Providence office where employees working on this program are based. The firm also provides like services for other state energy efficiency initiatives nation-wide.

Impacts of COVID-19

Guidehouse did not interview any staff associated with delivery of this program, so is unable to draw conclusions on the impacts of COVID-19.

3.2 Marketers

Marketers primary role is promoting National Grid Rhode Island's energy efficiency programs. Marketers' role generally includes media buying and planning, creative concepting, campaign development and strategy, and facilitating planning sessions for program years.

Delivery

Eric Mower and Associates (Mower) is the primary marketing consultant for National Grid. Mower is the main agency of record servicing marketing for National Grid, handling programs across residential and commercial sectors. In 2020, Mower took on communications responsibilities, in addition to their regular marketing roles. This was as a result of an internal change in Mower and how they manage their teams where the communications teams were integrated into the marketing segment of the company. This allowed Mower to provide a more holistic story to the energy efficiency customers in Rhode Island.[18]

[17] This section is adapted from the 2018 study "Analysis and Recommendations regarding the Current and Future Workforce Associated with 2018 Rhode Island Energy Efficiency Programs", accessed at http://rieermc.ri.gov/wp-content/uploads/2020/07/2018-attachment-5-workforce-report-final.pdf. The use of text is done with the permission of Peregrine Energy Group and National Grid.
[18] Interview with Mower, March 12, 2021.

Impact of COVID-19

Starting in March 2020, Mower employees began working from home due to the COVID-19 pandemic. At the time of this report writing, employees were still working at home. However, this had no impact on the way Mower supported the Natural Grid programs and there were no layoffs in the company that impacted the number of FTEs associated with the National Grid programs in Rhode Island.

3.3 Rebate Processing Company

Rebate processors receive and process applications from participants for different rebates. They generally receive the applications by mail or online submission and proceed to validate whether the customers and equipment are eligible for the rebate. If a customer is found to be eligible, they can approve instant payment to them. All data related to this process is collected by the rebate processors and sent to National Grid. Rebate processors will also provide customers with support throughout the process using call centers, notification emails, or letters.

Delivery

In 2020, the rebate processing continued to be done solely by Energy Federation, Inc. (EFI). EFI is based in Westborough, Massachusetts, and processes rebates and incentives offered to program participants. Program participants include both consumers, i.e., National Grid customers who purchase targeted products and then apply for rebates, and equipment installers who promote and encourage National Grid customers to choose higher efficiency products.

Initiatives supported by EFI included Rhode Island Pool Pump and Upstream Circulator Pump Distributor programs, as well as the ENERGY STAR® Appliances, Lighting, and HVAC programs. They also provided call center support for the Rhode Island appliance program that focuses on high efficiency clothes dryers and dehumidifiers.

In 2020, EFI continued to work on the heating and cooling program by performing inspections in order to ensure the rebate was valid. EFI subcontracted to CLEAResult to perform equipment inspections on-site as well as handle the related phone calls from customers.

Starting in 2020, EFI began processing the incentives for the ENERGY STAR® Gas and Electric HVAC programs. In previous years, this was done by CLEAResult. However, National Grid made this change in 2020 to streamline its processes across the various programs.[19]

For its Upstream programs, EFI made significant updates to the way they pay the incentives for sales made by manufacturers and retailers. This was a significant factor that contributed in an estimated 5% increase in the number of projects completed and customers served in 2020 over 2019.

Impact of COVID-19

Prior to COVID-19 being declared a pandemic by the World Health Organization (WHO), EFI had already transitioned their call center to work from home. After the declaration of the

[19] Interview with CLEAResult, March 3, 2021

pandemic, the rest of EFI's workforce transitioned to work from home. This had no impact on the number of FTEs associated with National Grid's energy efficiency programs in Rhode Island nor did it change the number of hours required to do their jobs.

The inspections that CLEAResult performs for EFI transitioned to be completely virtual due to the pandemic. This occurred in the summer months, after inspections had been shut down completely for the spring of 2020.

The 5% increase in program activity observed in 2020 relative to 2019 would have been higher, had program inspections not been shut down for a couple of months in the spring of 2020 due to the pandemic.[20]

3.4 Evaluators

To measure the performance of Rhode Island Program offerings against annual goals, National Grid contracts with independent consulting firms specializing in utility program evaluation. Many of these firms support National Grid evaluation needs in other states as well.

Delivery

DNV GL, based in Burlington, MA, provided approximately 40% of the Rhode Island program evaluation services in 2020, as a percentage of overall evaluation spending. This was an 18% decrease in the share of Rhode Island program evaluation services DNV GL served in 2019. Other evaluation firms perform energy efficiency evaluation services in Rhode Island as well. In 2020, these included, but were not limited to, Cadeo Group, The Cadmus Group, and Tetra Tech Inc.

Impacts of COVID-19

Guidehouse did not interview any staff associated with delivery of this service, so is unable to draw conclusions on the impacts of COVID-19.

3.5 COVID-19 Training

Due to the Personal Protective Equipment (PPE) requirements resulting from the COVID-19 pandemic in 2020, National Grid engaged Environmental Health and Engineering for six weeks[21] to develop the PPE requirements for the various programs and host online trainings related to COVID-19 for all vendors. This work included some in-field inspection to ensure the various vendors were adhering properly to the COVID-19 policies; this work concluded in the fourth quarter of 2020.

Delivery

Environmental Health and Engineering specializes in emergency services, environmental health and safety compliance, remediation oversight and building commission. Environmental Health and Engineering designed the PPE requirements for each of the vendors that would be going to

[20] EFI Interview, March 8, 2020

[21] Written communication with Environmental Health and Engineering on April 5, 2021

customer sites to ensure that proper health and safety protocols related to COVID-19 were followed and all parties were safe. The Environmental Health and Safety team also hosted online trainings for all vendors, so they were properly educated and equipped to return to work once the programs started back up in the summer. Environmental Health and Safety also went into the field to inspect vendors to ensure they were adhering to all the necessary policies for COVID-19 safety.

Impacts of COVID-19

The vendor Environmental Health and Engineering would not have been required had it not been for COVID-19.

4. Direct Services Providers Analysis[22]

Based on its 2020 Energy Efficiency Year End Report, National Grid achieved 88% of its annual MWh savings targets and 71% of its annual MMBtu savings through its electric and gas energy efficiency programs. Achievement towards these energy efficiency goals in 2020 was the result of the aggregate efforts of the many Direct Services Providers who delivered the National Grid programs. This section describes each electric and gas program offered as well as the entity responsible for each program's delivery.

In 2020, National Grid employed multiple, targeted energy efficiency delivery strategies in Rhode Island. Energy efficiency programs described below were each designed for individual markets and reflect differences in the buying habits, drivers, and technical and financial resources of each market sector (residential, residential income-eligible, commercial and industrial) and their sub-sectors. Program delivery strategies varied with fuel type (i.e., electric vs. natural gas customers), characteristics of different customer rate classes, cost and benefits of different end-use technologies to classes of customers, and whether a program's objective was to affect energy efficiency in current operations or future energy use in new construction.

Please note that the implications COVID-19 had on the Rhode Island Energy Efficiency program operations and the workforce have been described where indicated by the interviewees; otherwise, this topic is not covered.

4.1 Commercial and Industrial Programs

In 2020, Commercial and Industrial (C&I) gas and electric programs continued to encourage installation contractors, both technology specialists and tradespeople, to take the lead in achieving National Grid's energy efficiency goals for large and small businesses. These C&I programs also target municipal facilities and large non-profit institutions (e.g., colleges and universities and healthcare facilities). At the same time, National Grid increasingly made use of "upstream" or "point-of sale" strategies, particularly for LED lighting, that discounted the purchase price of preferred, more energy efficient equipment to accelerate market transformation and replacement of older technology.

C&I programs differentiate between "prescriptive" and "custom" energy efficiency measures. Prescriptive measures, often lighting, qualify for pre-determined incentives or discounts from National Grid based on cost-effectiveness guidelines (e.g., hours of operation or equipment life). Custom and comprehensive measures are often more complex and are evaluated and approved for incentives based on actual total savings they projected to produce. In particular, the Large Commercial and Industrial Retrofit program encourages customers and their installation contractors to incorporate or bundle a mix of shorter payback, more certain, energy savings measures and longer payback, more complex, energy savings measures into projects, providing enhanced incentives for more comprehensive and deeper efficiency improvement.

[22] This section is reproduced from the 2018 study "Analysis and Recommendations regarding the Current and Future Workforce Associated with 2018 Rhode Island Energy Efficiency Programs", accessed at http://rieermc.ri.gov/wp-content/uploads/2020/07/2018-attachment-5-workforce-report-final.pdf. The use of the text is done with the permission of Peregrine Energy Group and National Grid.

A National Grid Senior Analyst in Customer Energy Management and a Commercial and Industrial Program Manager both identified no significant program changes for 2020 relative to 2019 that were unrelated to COVID-19.[23]

4.1.1 Large Commercial New Construction (Electric)

The Large Commercial New Construction program encouraged energy efficient design and construction practices in new and renovated commercial, industrial, and institutional buildings. The program also promoted the installation of high efficiency equipment in existing facilities during building remodeling and at the time of equipment failure and replacement. The program offered incentives to eliminate or significantly reduce the incremental cost of high efficiency equipment over standard efficiency equipment and provided technical support to assist customers to identify opportunities for incremental efficiency improvement in eligible buildings.

Delivery

The New Construction program was administered and promoted internally by National Grid staff. As noted above, it offered both technical and design assistance to customers to identify opportunities for incremental efficiency improvement in new building designs and to help customers and their architects/engineers to refine their designs to capture these opportunities. Outside consultants were assigned to assist customers to identify and incorporate energy efficiency solutions into new construction designs and to complete detailed studies that model and quantify energy savings. Commissioning or quality assurance was also offered to ensure that the equipment and systems operate as intended.

Impacts of COVID-19

Guidehouse did not interview any staff associated with delivery of this program, so is unable to draw conclusions on the impacts of COVID-19.

4.1.1.1 Engineering Support

To further support large commercial customers, National Grid contracted with consulting engineers who could be deployed by an account manager to assist a customer. Engineers identified potential custom projects, evaluated or modeled the potential energy savings, and helped the customer complete incentive applications. Some of these consultants brought expertise in specialties like data center energy efficiency improvement or laboratories and clean room technology. In other situations, the customer could propose a scope of work with their own engineer that National Grid could elect to support. Support from contracted consulting engineers was available through National Grid to witness project commissioning, to confirm that the installed measures were operating and performing as anticipated, and to ensure that predicted savings would be achieved. Consulting engineers are used for both new construction and retrofit projects.

[23] Interviews with National Grid on February 9, 2021

Impacts of COVID-19

Customers controlled whether or not the workforce associated with the energy efficiency programs could enter the premises to complete work; this resulted in a large number of projects pushed to 2021.

It was the responsibility of the PEX and other contractors to purchase to necessary PPE (e.g., masks, goggles, gloves, etc.) to enter the premises. One PEX chose not to purchase the required PPE, as they felt it should go the medical community instead and suspended its activities as a Project Expeditor. [24]

4.1.2 Large Commercial Retrofit (Electric)

The Large Commercial Retrofit program replaces older, but still operating, less efficient energy equipment and systems with more energy efficient equipment. Energy efficiency improvements installed through the program include but are not limited to interior and exterior lighting and lighting controls; drives; heating, ventilation and air conditioning (HVAC) systems; building controls; combined heat and power systems; and street lighting. The goal is achieving persistent, measurable energy savings.

All existing commercial, industrial, and institutional customer facilities are eligible to participate. Customers in the program tend to be larger (i.e., have a monthly usage greater than 1,000,000 kWh) or are pursuing custom electricity saving measures not available through the prescriptive Direct Install Program. National Grid pays incentives to assist with defraying a portion of the costs associated with installing equipment. National Grid also can choose to provide engineering assistance to customers to assist with identification of cost-effective opportunities.

Delivery

The Large Commercial Retrofit program is a market-based initiative with no contracted program administrator or designated preferred suppliers. National Grid has established performance standards for qualifying energy efficiency measures and allows customers to choose the suppliers and installation vendors they want to work with. Customers submit applications to National Grid for incentives that are based on projected savings that will be achieved and receive payments from National Grid that help defray costs associated with installed equipment. Installers of record for these projects are identified by National Grid as either “customers,” “installation contractors,” or PEX.

In addition to the main program described above, several initiatives exist within the Large Commercial Retrofit program, described below.

Impacts of COVID-19

The shutdowns in the spring of 2020 due to the COVID-19 pandemic resulted in a decrease in the number of projects completed in the Large Commercial Retrofit. This decreased both the

[24] Interview with National Grid on February 10, 2021

spending of the program in 2020 when compared to 2019, as well as the number of FTEs associated with the program in 2020 compared to 2019.

4.1.2.1 Upstream Lighting (Electric)

National Grid's Commercial and Industrial Upstream Lighting program encourages customers and electrical contractors to choose higher efficiency lighting products at the point of purchase. This program was launched due to a recognition that commercial customers were going to large lighting distributors to purchase stocks of replacement lighting to have should lights fail or to undertake large-scale change-outs. At that point in time, fluorescent lighting predominated the commercial market. National Grid reasoned that if a customer again purchased and installed the same "old technology" fluorescent product as was being replaced, this would be a major lost opportunity for efficiency improvement; but if the customer could be influenced to purchase and install a more efficient LED product, both National Grid and the customer would realize the benefits and savings of energy use reduction.

Delivery

National Grid contracted with CLEAResult to administer, support, and promote Upstream Lighting. The same team manages the Upstream Lighting program in Massachusetts. CLEAResult has engaged manufacturers and enlisted lighting distributors throughout Rhode Island, offering incentives from National Grid to reduce list prices of specified energy efficient products to electrical contractors and businesses, with the goal of transitioning and transforming stocking practices and customer purchasing behavior.

CLEAResult processed reimbursements to suppliers for discounts provided and managed a quality assurance process to ensure that recorded sales were legitimate. Larger distributors were audited to verify that product sold through the program were indeed going to the customers of record.

Impacts of COVID-19

CLEAResult indicated in an interview that COVID-19 had no impact on the number of projects completed or the number of FTEs associated with the Upstream Lighting program. However, COVID-19 did change the way certain aspects of the program are run. For example, the market outreach specialist at CLEAResult, whose role is to interact with distributors and manufacturers, had to transition to completely virtual interactions. Though this decreased travel time associated with the role, they reported that the quality of the interactions decreased. After the pandemic is under control, CLEAResult plans to return to in person interactions with the distributors and manufacturers.[25]

4.1.2.2 Energy Smart Grocer

National Grid contracted with CLEAResult, through its Massachusetts office in Westborough, to offer the Energy Smart Grocer sub-program, which helped large and small supermarket chains identify and implement energy efficiency improvements. Participating customers were part of local and regional chains and secured through outreach in partnership with the RI Food Dealers Association. Working in 60 kW or larger food markets, CLEAResult focused on refrigeration

[25] Interview with CLEAResult, March 3, 2021

improvement, controls, and lighting. CLEAResult employed auditors and other technical staff to identify and develop efficiency improvement projects, helped them engage contractors to complete upgrades, provided technical support as needed, and performed quality assurance inspections of installations.

The program also achieves gas savings through HVAC equipment operation, due to dehumidification and keeping cold air in refrigerated cases rather than letting it spill into supermarket aisles.

4.1.2.3 Industrial Energy (Gas and Electric)

National Grid contracted Leidos Engineering, Inc. to help Rhode Island and Massachusetts manufacturers identify and implement energy efficiency improvements in industrial processes.

Leidos provided targeted engineering support to participating customers, functioning as an owner's representative as customers developed projects with specialty vendors and contractors. A typical engagement included meetings with a customer to review existing operations, major energy uses, and current production issues. Following a guided walk-thru of the facility, Leidos engineers prepare a summary of opportunities and suggested next steps. Depending on the specific interests expressed, Leidos helped identify vendors/contractors and prepared applications for National Grid incentives. Most industrial projects were process-related, and customers often use their own employees for installation and construction.

Leidos has reported that market saturation is becoming an issue in Rhode Island due to the relatively small size of its industrial base. However, Leidos noted that there were still many measures that could be implemented to achieve greater savings within the current customer base.

Impacts of COVID-19

In the spring, similar to other programs, Leidos was unable to complete any site visits due to the COVID-19 pandemic. Therefore, the Industrial Energy program developed a virtual audit protocol to decrease the risk of COVID-19. Additionally, instead of sending their workforce to customer sites to deploy metering, the energy advisors at Leidos mailed metering and logging equipment to customer sites. Along with the equipment, Leidos provided thorough set up instructions, so the customers were able to install the equipment themselves. Leidos also provided a shipping label that allowed customers to send back their old equipment. This allowed the program to continue operating despite the fact that their workforce was not able to travel to customer sites. Leidos indicated they had a significant backlog of projects that they were able to work through during the spring of 2020 when they could not access customer sites.

Since late summer, Leidos operations have gone back to normal. Other than for some data analysis, Leidos has resumed in person site visits, though they have adopted the necessary social distancing rules and the appropriate PPE.[26]

[26] Interview with Leidos, March 10, 2021

4.1.3 Small Business Direct Install (Electric and Gas)

In 2020, the Small Business Direct Install program continued to provide direct installation of prescriptive energy efficient lighting, non-lighting retrofit measures, and minor gas efficiency measures.

Delivery

The Direct Install program's lighting measures were delivered by RISE Engineering of Cranston, Rhode Island and sourced from a product vendor. RISE provided turnkey installation services to this market. According to National Grid, RISE continued to handle 70% of the applications serviced in 2020, similar to 2019. The 30% of remaining applications not serviced by RISE were serviced through the Customer Directed Option (CDO).[27]

RISE employees engaged in the Small Business program were responsible for marketing and lead generation as well as staffing an intake center that was responsible for pre-qualifying potential customers. RISE energy specialists performed field audits of customers' facilities, and data entry staff used completed audits to generate proposals for customers. Audits also resulted in referrals to the Commercial and Industrial Gas Program. When a customer accepted a RISE proposal, a RISE project manager ensured that sufficient product was available for the installation, issued that product to the installer/electricians, and closed out the work order when the installation was completed. RISE maintained a supervised warehouse for material distribution and materials handlers. RISE also employed back office and accounting staff to service this program. Active electricians included both RISE employees and employees of sub-contractors.

Impacts of COVID-19

As a result of the safety precautions needed to be taken due to the global pandemic, RISE began completing virtual audits. Customers could video chat with the RISE energy specialists to show them their facilities or they could send photos directly to RISE of their facilities. This had no impact on the RISE FTEs associated with the Small Business Direct Install program.[28]

4.1.4 Large Commercial New Construction and Retrofit (Gas)

Large Commercial and Industrial Gas programs supported installation of energy efficient gas heating and water heating systems, certain thermal envelope measures, and custom gas systems in existing buildings and in new construction. The program guidelines for measure eligibility were the same as for the Large Commercial Retrofit program and the New Construction program. All commercial, industrial, and institutional customers were eligible to participate.

The C&I gas programs offered technical assistance to customers to help them identify cost-effective conservation opportunities and paid incentives to assist in defraying part of the material and labor costs associated with the energy efficient equipment. A retrofit measure must demonstrate that it will increase energy efficiency above the performance of the still-functional equipment it will replace. For new construction or in the case of failed equipment, "lost

[27] Interview with National Grid, February 16, 2021
[28] Interview with RISE Engineering, February 24, 2021

opportunity" rules apply. New equipment, to be eligible for incremental incentives, must exceed the efficiency of what applicable codes require.

Delivery

National Grid handles the roles of program manager, project coordinator, customer engagement, and data management internally. RISE is engaged in the program in a technical support role. RISE technical staff included multiple engineers, field staff performing audits, an installer doing minor installations for the Small Business Direct Install program, and a quality assurance specialist who validated engineering work. Project energy measures included weatherization, controls, process automation, combustion efficiency, heat recovery, combined heat and power, steam traps, and hot water upgrades. RISE performed post-installation inspections of completed projects.

Leidos Inc. continued to handle retrofits and new construction for industrial customers. Leidos completes in field assessments of facilities to identify measures, and then develops a workplan to turn those measures into projects. Leidos completes all energy savings calculations and coordinates with the contractors to execute the project. In 2020, Leidos presence in the new construction market grew, largely as a result of National Grid expanding their role in supporting the new construction services.

Impacts of COVID-19

Due to the shutdowns that occurred in the spring of 2020, many contractors working on the Large Commercial New Construction and Retrofit programs had to furlough or, in some cases, fully lay off their employees. This resulted in an overall decrease in the number of FTEs associated with the program in 2020 compared to 2019.

Though the contractors that work on the program did experience layoffs resulting in an overall decrease in FTEs, neither Leidos or RISE let go of any employees in 2020 due to COVID-19. In the summer, when the programs could start up again, RISE and Leidos developed virtual audit processes, allowing their workforce to continue completing their jobs.

4.1.5 Commercial ConnectedSolutions

The Commercial ConnectedSolutions program is a technology-agnostic demand-response program and provides an incentive to participating C&I customers for verifiable shedding of load in response to a signal or communication from National Grid during curtailment events. A new Daily Dispatch option was added to the Targeted Dispatch option in 2020.[29]

Delivery

Five curtailment service providers (CSPs) were certified and contracted for the Commercial ConnectedSolutions program in 2020, with one new CSP added. They market to and recruit customers under the terms of the program. The most active of these is CPower Energy Management, which provided about half of the contracted demand reduction, including many

[29] National Grid, Annual Energy Efficiency Plan for 2020, October 15, 2018

customers in the municipal sector. The program employed EnergyHub to provide the Demand Response Management System (DRMS) platform for the program.

Impacts of COVID-19

For the Commercial ConnectedSolutions, an onsite visit is required when enrolling customers into the program. This allows National Grid to gain an understanding of the amount of demand customers will be able to reduce based on the solutions provided. Due to COVID-19, National Grid transitioned this to a virtual assessment. Additionally, it was noted that due to pandemic, it was more difficult to engage customers than in previous years.[30]

4.2 Income Eligible Residential Programs

National Grid offers Income Eligible programs to its electric and gas customers residing in single family (1-4 unit) dwellings and multifamily (5 or more unit) buildings or developments who are eligible for the Low-Income Heating Assistance Program (LIHEAP). This target audience is eligible to receive energy-related assistance through federal and state programs. National Grid's program strategy in this market is to support, complement, and leverage the resources and services provided by these other programs.

4.2.1 Single Family – Income Eligible Services (Gas and Electric)

National Grid's Income Eligible Single Family program provides low-income customers in 1-4 unit buildings with home energy assessments, installation of energy efficient LED lighting, appliances, heating systems, domestic hot water equipment, and weatherization measures. For many decades, energy services have been, and continue to be, provided to this market sector through local non-profit Community Action Program (CAP) agencies under contract to the Rhode Island Department of Human Services (DHS). These agencies deliver the federally funded Weatherization Assistance Program (WAP) and LIHEAP. These services are fuel-blind and available to income-qualified gas, oil, propane, and electric heat customers as budgets allow. Six CAP agencies provide statewide coverage to Rhode Island residents.

Under the Income Eligible Single Family program, CAP agencies provide three types of building audits: audits focused on lighting and appliances only that install lighting products; audits providing detailed recommendations and work orders for insulation contractors, heating system and ventilation fan installers; and comprehensive audits that do both. Building Performance Institute (BPI) -certified auditors complete building assessments and work orders.

Delivery

CLEAResult, working out of offices in Providence, Rhode Island, has been managing the Income Eligible Single Family program since 2013. CLEAResult serves as the conduit for National Grid payments to the CAP agencies and works closely with the Rhode Island DHS staff to coordinate and optimize delivery of ratepayer-funded services and traditional weatherization assistance.

[30] Interview with National Grid, March 11, 2021

Under CLEAResult's management, productivity and quality of service delivery to low income residents has continuously improved. CLEAResult has expanded training for current auditors, increased quality control, and improved oversight of National Grid-funded services and installations delivered through CAP agencies.

Several independent contractors are active in income-eligible weatherization, installing insulation and completed air sealing for the CAP agencies. Many of these contractors also are active in the EnergyWise Single Family program. Contractors are selected off a state-approved list and offer fixed pricing statewide for installed measures. Each agency has a handful of insulation contractors they typically work with. The CAP auditing staff inspects completed insulation work post-installation to ensure it was properly installed.

Additionally, several heating system repair and replacement contractors are active in this market. Heating system upgrades are put out to bid to contractors, and heating contractors also are used for post-installation inspections. There are also electrical contractors that are approved to repair and install bathroom fans to address humidity issues and to replace or disable antiquated knob and tube wiring (a code requirement that must be done for safety purposes before insulation can be installed in walls and ceilings).

ACTION, Inc., based in Massachusetts, oversaw the refrigerator replacement service provided to income eligible residential customers. This included product procurement, ordering, delivery, removal and disposing of old appliances, and conducting quality assurance surveys.

Impacts of COVID-19

There was significant turnover seen in the workforce associated with the Single Family - Income Eligible Services program in 2020. Many employees who were close to retiring opted to retire in the spring instead of navigating the uncertain work environment that was brought on by COVID-19. CLEAResult hired employees to replace those who had retired, and in some cases multiple employees had to be hired to replace a single employee who had retired. This was due to the fact that employees close to retirement were extremely experienced with their roles and could handle a greater workload than a new employee entering the workforce would be able to. CLEAResult indicated there is also significant turnover with new employees in this industry, due to the nature of the work. Therefore, as might be expected, there were some new employees brought on this year that chose to pursue new opportunities after only a few months. Overall, this resulted in a decrease of FTEs across the gas and electric Single Family – Income Eligible Service programs.[31]

The CAP agencies had furloughed many employees from March through August of 2020 due to the inability to complete field work. CLEAResult reported that all employees from the CAP agencies were brought back into the workforce later in the year, resulting in no permanent loss of FTEs. Interviews were not conducted with CAP agencies to confirm this.

The number of customers served through the program decreased 20% in 2020 relative to 2019. The entire decrease in customers served was a direct result of the pandemic. In the spring and summer, customers would not allow field staff into their homes to complete assessments or

[31] Interview with CLEAResult on February 24, 2021

installations. The addition of new health and safety requirements slowed down the program, causing the field work, when it did start up again, to take significantly longer.

The program transitioned to virtual home assessments and, instead of sending field staff to install small measures such as lightbulbs, the equipment would be shipped to the customer with installation instructions. This allowed the customer to install measures themselves and limited the amount of in person interaction required.

4.2.2 Income Eligible Multifamily (Gas and Electric)

Since 2013, National Grid has provided energy efficiency offerings for income-eligible multifamily properties with five or more units through the EnergyWise Multifamily program. This suite of programs addresses both gas and electric opportunities. Comprehensive energy services available to these customers included energy assessments, incentives for heating and domestic hot water systems, cooling equipment, lighting and appliances. Services provided to income-eligible and market rate units and buildings through EnergyWise Multifamily program are tracked separately.

Additionally, and in parallel, the Income-Eligible Residential New Construction program works with Rhode Island Housing, local housing authorities, and developers of income-eligible housing to encourage construction of energy efficient properties.

Delivery

In conjunction with its delivery of EnergyWise Multifamily services, RISE Engineering, based in Cranston, Rhode Island, had primary responsibility for delivery and coordination of Income Eligible Multifamily services. RISE staff serve as project managers for retrofit projects, meeting with building facility managers and writing work orders and scopes of work (e.g., for air sealing, attic insulation, lighting fixtures, and even replacement refrigerators from retailers) for low-income residents. Independent contractors installed weatherization materials (insulation and air sealing) and heating equipment components. CMC Energy Services, Inc. provided quality assurance (QA) inspections to a sample of income eligible MF residential customers served. CLEAResult provided support for energy efficient construction of new income-eligible units through the Residential New Construction program.

Impacts of COVID-19

Guidehouse did not interview anyone associated with this program, so is unable to draw conclusions on the impacts of COVID-19.

4.3 Residential (Non-Income Eligible) Programs

In 2020, National Grid's residential programs continued to offer a range of services and incentives to encourage residential electric and natural gas customers, be they owners or tenants, to install energy efficient equipment and materials and to operate their homes with energy efficiency in mind. Programs promoted conversion of residential lighting to LED technology, purchase of more energy efficient appliances, building weatherization, HVAC system replacement, and energy efficient new construction.

Large energy services companies who specialize in supporting utility energy efficiency initiatives are under contract to manage and deliver individual programs. The energy service company's role is, typically, to engage a wide range of market actors, including both buyers and sellers of energy efficiency products and services, who are needed to make a residential sector sub-market work. The company then brings these stakeholders together, provides education, training, and technical support, and facilitates investments that result in energy use reduction. Delivery information on each program is detailed below.

4.3.1 EnergyWise (Gas and Electric)

In 2020, EnergyWise provided residential customers living in single-family homes (defined as 1- to 4-unit buildings) with a comprehensive energy assessment of energy use and building-specific recommendations for actions to take to increase home energy efficiency. These included:

- Technical assistance to identify how and where to improve building insulation and whether to replace appliances, heating systems, and thermostats with high efficiency models.
- Upgrading to LED lighting, low-flow showerheads, low-flow faucet aerators and smart power strips.
- Work orders for weatherization services (insulation and air sealing), for which National Grid would provide financial incentives. If upgrades were made, quality assurance inspections were also provided.
- Rhode Island Heat Loan, which provides 0% interest financing to eligible single-family customers to support the adoption of recommendations made during the assessment.

Delivery

For 2020, National Grid again contracted with RISE Engineering, based in Cranston, Rhode Island, to manage and deliver the EnergyWise Single Family program. Staff had a wide range of program roles: program managers, office and field staff supervisors, field auditors, field installers and technicians, field inspectors, intake staff and schedulers, warehouse and material management staff, electricians, quality assurance/quality control inspectors, database management, and accounting and contract oversight personnel.

CMC Energy Services, Inc. provided quality assurance (QA) inspections to a sample of EnergyWise Single Family residential customers served. QA addressed all phases of service delivery and included review of field auditors' performance, post-audit counts of installed measures, and post-weatherization site visits to confirm proper installation technique and customer satisfaction with results.

Impacts of COVID-19

Starting in March 2020, the program was shut down for three months. The program began to start back up in June, and was fully operational again by August, with some changes to accommodate the new health and safety protocols related to COVID-19.

In 2019, a two-person auditor and installer team conducted the residential energy assessments, also called building audits, providing analysis, education, and instant savings from installations

in a single visit. Starting in June 2020, RISE transitioned to a single-person audit visit, due to the necessity for increased health and safety precautions during the COVID-19 pandemic. This change in the auditor and installer team from two people to one person resulted in approximately a 15% decrease in the number of RISE FTEs associated with the program in Rhode Island. Due to budgetary restraints resulting from the decrease in the lighting aspect of the program (unrelated to COVID-19), which used to cover the overhead of sending in a two-person technician team, RISE will continue with the one-person installer team after the pandemic is under control. RISE worked to redeploy the energy technicians that were no longer needed as part of the auditor and installer team. Some of the energy technicians are now electricians in training or were moved to the warehouse.

In addition to the one-person audit team, RISE began offering virtual assessments. This reduced the time required for field staff to be on site and in customer's homes. With a virtual assessment, only the technician needs to travel to the customer's home to do a pretest and verify the scope of work. A virtual audit reduces the amount of time spent traveling; however, it can increase the time it takes to scope the project and the contract. National Grid was only marketing virtual assessments, and RISE offered it as the first choice for customers, while some customers still requested in person assessments. In those cases, RISE would send one auditor to complete the assessment and the auditor would adhere to social distancing and wear the necessary PPE.

Recognizing the challenges the program faced due to COVID-19, beginning in mid-2020, National Grid offered an increased weatherization incentive of 100%, where audits were completed by October 31 and contracts were booked through year end 2020. National Grid marketed this program significantly throughout the summer and this mitigated the decrease in weatherization projects in 2020 compared to 2019. In 2019, 4,632 weatherization projects were completed and, in 2020, a total of 3,679 weatherization projects were completed. Weatherization projects could not be completed for 25% of the year (i.e., three months) due to the COVID-19 lockdowns resulting in an almost proportional decrease in weatherization projects of 21%. In the first quarter of 2021, RISE was still completing weatherization projects that were eligible for the 100% weatherization incentive because they were booked prior to October 31, 2020.[32]

Paralleling the decrease in audits and building weatherization projects completed in 2020, the number of FTEs from contractors decreased by 20%. This was as a result of contractors decreasing the sizes of their crews through layoffs due to the decreased number of projects in 2020. However, RISE indicated that the numbers of the contractor firms they worked with increased as the pandemic caused some re-organizations.[33] The increase in new contracting firms did not increase the size of the overall workforce. There was still a net decrease in 2020 plus the 3 month or longer furlough results in a net FTEs decrease for this program.

4.3.2 Residential Consumer Products

In 2020, the Residential Consumer Products program was again coordinated with other regional utilities to promote the purchase of high efficiency household appliances and electronics. These appliances carry an ENERGY STAR® label. The program also offered refrigerator and freezer recycling, which helped address a significant barrier to purchasing a more efficient appliance.

[32] Interview with RISE Engineering, March 2, 2021

[33] Interview with RISE Engineering, March 2, 2021

This appliance disposal program also has helped remove non-efficient units from the market (eliminating additional, older units in customer basements and garages and preventing them from entering the used appliance market), recycled appliance components, and captured and properly disposed of refrigerants. Additional consumer products like Wi-Fi thermostats, Tier 2 advanced power strips, energy efficient dehumidifiers, room air conditioners, and pool pumps have proven to be applicable to this point-of-purchase strategy and are similarly available from retailers.

Delivery

TRC Companies manages the ENERGY STAR® Appliances in Rhode Island and Massachusetts. As is the case with ENERGY STAR® Lighting, ENERGY STAR® Appliances is primarily a retail-store based initiative. TRC Companies engaged major retail outlets, providing the same support as for ENERGY STAR® Lighting. TRC also subcontracted for disposal and recycling of replaced air conditioners and dehumidifiers.

National Grid and the other regional utilities contract with ARCA Recycling Inc. to recycle older refrigerators and freezers as part of the holistic strategy to encourage the purchase of energy efficient products. ARCA, operating in Franklin, Massachusetts, is responsible for refrigerator collection, dismemberment, and material recycling. The ARCA workforce consists of employees that work at the Franklin recycling facility, transportation employees who travel into the field to pick up the appliances from customer's homes, administrative employees, account managers and call center agents to field customer questions.[34]

As explain in section **Error! Reference source not found.**, Uplight began providing an online marketplace for residential consumer products late in 2019 to promote and provide a platform for the purchase of energy efficient appliances for residential consumers. The Uplight team consists of customer care representatives, program managers, e-commerce operators, reporting, product supply and analytics teams, as well as marketing and engineering employees.

Impacts of COVID-19

Due to the nature of the online marketplace, Uplight's workforce was not significantly impacted by COVID-19. National Grid advised Uplight to pause marketing for the program during the spring of 2020, but the marketing resumed in the summer.[35]

Prior to 2020, ARCA employees would enter into customer homes to retrieve the appliances. Due to the health and safety precautions surrounding COVID-19, in 2020 ARCA began instructing customers to leave the appliances on their front porch or in their garage, so that they would be accessible by the ARCA pickup team and would not require any interaction between the ARCA employees and the customers. This decreased the amount of time the ARCA team had to spend at each customer location picking up an appliance, because the appliance was all ready for pickup by the time they arrive. This streamlined ARCA's process and allowed for the team to complete more appliance pickups per day. It was also more convenient for the customers, as they did not need to be home for ARCA to come pick up their old appliances.

[34] Interview with ARCA, March 1, 2021

[35] Interview with Uplight, March 9, 2021

After the global pandemic is under control, ARCA plans to continue the contact-less pickup due to the efficiencies is provides the program.

The economic hardships that customers faced in 2020 due to the global pandemic drove customers to have a higher interest in energy savings measures, increasing the amount of transactions done through the online marketplace. Additionally, customers were more interested in recouping the financial incentive associated with recycling an old appliance than they were in previous years. This resulted in an increase of nearly 35% in the number of units ARCA recycled in 2020 compared to 2019.[36]

4.3.3 EnergyWise Multifamily (Gas and Electric)

In 2020, EnergyWise Multifamily continued to provide comprehensive energy services to multifamily customers in buildings with five or more units, including energy assessments, incentives for heating and domestic hot water systems, cooling equipment, lighting, and appliances. These same services were available to both market rate and income-eligible multifamily properties.

Delivery

RISE Engineering managed and coordinated the services offered across a portfolio of National Grid programs, including EnergyWise Multifamily, Commercial Multi-family, and Income Eligible Services (i.e., Low Income) Multi-family. RISE employees delivering multifamily programs included the Multi-family Operations Manager, a technical services director, field coordinators, field auditors and installers, warehouse materials handlers, and project intake and coordination staff. RISE staff also served as project managers for retrofit projects, meeting with building facility managers, making presentations to condominium boards and owners, and writing work orders and scopes of work (e.g., for air sealing, attic insulation, lighting fixtures, hot water systems and boiler resets, and even replacement refrigerators from retailers for low-income residents).

CMC Energy Services, Inc. (CMC) provided quality assurance (QA) inspections to a sample of EnergyWise Multi Family residential customers served. In addition to its regular PPE inspections, CMC Energy Services, Inc. also completed three to five PPE inspections for National Grid in Rhode Island. This included ensuring that the workforce in the field was adhering properly to the PPE and social distancing requirements.

Impacts of COVID-19

The EnergyWise Multifamily program was dramatically impacted by COVID-19. The decrease in the number of projects completed for the program was largely due to the fact that it was up to the building owners if they wanted to allow the workforce to visit its premises. It is important to note that when many units within the same building are completed at once, this only counts as one site. Therefore, if one building owner is not allowing site visits, then multiple projects could be impacted. It was particularly difficult for the program to access any publicly owned buildings, as well as any buildings occupied by elderly residents due to their increased risk associated with COVID-19.

[36] Interview with ARCA, March 1, 2021

RISE noted there was an opportunity for its workforce to enter a few buildings under some owners when the audit was paired with other work occurring on the multifamily property. For example, if someone was entering the building to do general maintenance, they occasionally contacted RISE and allowed the auditor to enter at the same time.

Though many programs were able to transition to virtual assessments, this was found to be more difficult for multi-family dwellings. Therefore, there was no meaningful transition made to virtual assessments for the EnergyWise Multifamily program in 2020.

The decrease in the number of projects completed in 2020 was mirrored by the decrease in the number of FTEs serving the program. Overall, there was a 30% decrease in the number of RISE FTEs serving the EnergyWise Multifamily program in 2020 when compared to 2019.[37]

Due to COVID-19, CMC transitioned its inspections to virtual rather than in person. This required a significant amount of administrative and database changes to make this transition. However, this did not impact the number of FTEs associated with the program because the transition was done during the program shutdown in the spring, when there were no QA inspections happening, so CMC was able to reallocate its workforce to focus transitioning to virtual assessments. In addition to this transition, CMC provided virtual trainings during the shutdown to keep their workforce engaged and did not furlough or layoff any employees. Two employees did retire at the beginning of 2020, but they were replaced by new hires and there was no net impact on the number of FTEs.

Due to the decrease in the number of projects completed, there was also a decrease in the number of projects that CMC QA'd in 2020. Additionally, some customers opted to wait for the QA until in-person inspections can resume instead of having a virtual assessment. This pushed some of the QAs into 2021.[38]

4.3.4 Home Energy Reports (Gas and Electric)

National Grid began offering Home Energy Reports (HER) to all residential customers in April 2013 as the first statewide behavioral program in the country and has continued the program through 2020. The Rhode Island HER program uses historical energy usage benchmarking and social comparisons to encourage energy efficient behaviors by residential customers.

The program provides emailed or mailed reports to customers containing customer-personalized energy usage information, recommendations, and links to National Grid's other residential energy efficiency programs and services. For electric customers, 12 emailed and 7 printed reports are sent, while gas customers receive 7 emailed and 4 printed reports. The goal of reports has been to generate actual energy savings by providing "tips" for reducing energy use as well as to increase demand for and participation in other residential programs offered by National Grid.

Delivery

Oracle Utilities, with offices in Arlington, Virginia, delivers the HER program using proprietary behavioral analysis and energy audit software. A Northeast team manages accounts and

[37] Interview with RISE Engineering, February 24, 2021

[38] Interview with CMC Energy Services, Inc., March 4, 2021

optimizes delivery services to clients in Rhode Island, Massachusetts, and New York. Oracle's HER service group continues to be staffed with behavioral scientists, marketing experts, engineers, and software product developers, with support staff, operating in cross-functional teams to develop and deliver Home Energy Reports across the U.S.

Impacts of COVID-19

Due to the increase amount that people were staying at home in 2020 due to the COVID-19 pandemic, there was an increase in home energy consumption. Many people were not only just staying home, but working from home and completing school from home, all of which drove an increase in home energy consumption.[39]

Home Energy Reports removed neighbor comparison for the bulk of 2020. This removed the competitive aspect to reducing home energy consumption when so many people saw their consumption patterns change due to increased time at home. Among energy saving tips included in the reports in 2020 were some COVID-specific tips focusing on low-cost/no-cost measures.

4.3.5 Residential New Construction (Gas and Electric)

The Residential New Construction program promoted the construction of high-performing energy efficient single family, multifamily, and low-income homes in both 1- to 4-unit buildings and multifamily buildings up to five stories. To that end, it educated builders, developers, housing agencies, tradesmen, designers, and code officials regarding the construction requirements, performance benefits, and costs for such buildings. Changes driven by the Residential New Construction program improve lifecycle energy performance. This is primarily attributable to better materials selection and improved construction methods.

Delivery

National Grid continued to contract with CLEAResult to deliver the Residential New Construction program in 2020. CLEAResult provided program management, data management, and administrative support to this program out of CLEAResult's Westborough, MA, office. Staff included a program manager, senior field managers, and project managers. Field personnel provided trainings and reviewed plans submitted by builders and developers. Field staff also modeled proposed buildings and completed inspections that verified and certified that construction practices for participating buildings receiving performance ratings.

Impacts of COVID-19

The field work associated with Residential New Construction program was shut down for three months in the spring of 2020, beginning in mid-March. When field work commenced, the field staff were required to wear PPE, such as masks, and to adhere to social distancing. Because the project sites for the Residential New Construction program are uninhabited, the field work was relatively safe and there were no further COVID-19 related impacts on the program.[40]

[39] Written communication with National Grid on March 31, 2021

[40] Interview with CLEAResult, March 1, 2021

4.3.5.1 Residential Codes and Standards Initiative (Gas and Electric)

The Codes and Standards Initiative has been the complement to the New Construction program, providing information, training, and technical support to the design and construction communities and to code officials in municipalities to increase code compliance. The Rhode Island Building Commission adopted a new energy code in 2020 resulting in additional training effort.

Delivery

National Grid contracted with CLEAResult in 2020 to lead this initiative in parallel with the Commercial New Construction program it also manages. CLEAResult coordinated and conducted residential trainings targeting HVAC contractors, architects, builders, and code enforcement officials. In addition, trainers delivered commercial classroom trainings. CLEAResult also fielded circuit riders to provide on-site technical assistance to developers and municipalities as needed.

Impacts of COVID-19

COVID-19 had no significant impact on the number of FTEs associated with the Residential Codes and Standards Initiative. The major change was that all trainings that CLEAResult facilitated were moved to virtual trainings. CLEAResult was able to make the transition to virtual trainings with no help from a third-party vendor, and it had relatively no impact on their workforce.[41]

4.3.6 ENERGY STAR® HVAC (Gas and Electric)

The ENERGY STAR® HVAC program promotes the installation of high efficiency gas heating and electric cooling systems to replace or displace existing, relatively inefficient equipment. The program also provided in-depth contractor training for design, installation, and testing of high efficiency systems, as well as quality installation verification training to ensure that all equipment is properly sized, installed, sealed, and performing.

Delivery

Westborough, Massachusetts-based CLEAResult delivers this program, providing training, technical support, and marketing assistance to trade allies to promote electric mini-splits and higher efficiency water heating systems. Equipment distributors are the market channel used to provide outreach to installation contractors about program objectives, requirements, and opportunities. Independent HVAC contractors installed high efficiency heating and cooling system components. The program has an open market for installation contractors, and there is a list of 70 approved contractors on the National Grid website that customers can reference.

Measures installed in this program are central HVAC units, boilers, furnaces, water heaters, and smart thermostats. Installers were plumbers, pipe fitters, electricians, and refrigeration technicians, primarily Rhode Island-based. This program also provides incentives for air source and ductless mini-split heat pumps and for converting electric resistance heating to air source

[41] Interview with CLEAResult, March 1, 2021

mini split heat pumps. These incentives are largely downstream to customers and contractors, rather than up- or mid-stream to distributors or manufacturers. Several HVAC contractors received training to qualify to perform these installations through the HVAC program.[42]

EFI handles the processing of incentive payments for HVAC incentive payments as they did starting in 2019.[43]

Impact of COVID-19

The ENERGY STAR® HVAC program never shut down due to COVID-19 in 2020. The CLEAResult workforce transitioned to virtual trainings and virtual assessments. For HVAC equipment inspections, the program transitioned a system that enabled the field staff to do their assessment of the equipment and installations from outside the home. However, the installation contractors were unable to enter customer homes throughout the spring of 2020. This decreased the number of assessments because less equipment was being installed in the spring. Restivos' (one of the largest heat pump contractors that works on the National Grid programs in Rhode Island) number of projects picked up very quickly once its workforce was able to enter customer's homes again to do installations. This could have been due to a number of factors, such as the increased amount of time people were spending at home due to the pandemic influenced customers to invest in their homes.

CLEAResult expects the virtual trainings to continue even when the global pandemic is under control, because it has increased the efficiency of the program by eliminating travel time for the workforce. This has increased the frequency that CLEAResult is able to host trainings. However, inspections that involve technicians testing equipment will return to in person due to the limitations associated with a virtual assessment.[44]

4.3.7 ENERGY STAR® Lighting (Electric)

ENERGY STAR® Lighting is a "point-of-purchase" initiative in coordination with other regional utilities. The program's strategy is to facilitate retailer discounts on lighting products that National Grid would like residential customers to purchase, resulting in instant rebates and special promotions at retail stores. A mail-order catalog and online store are also available to customers for lighting purchasing.

Delivery

TRC Companies, with an office in Marlborough, Massachusetts, supported the residential consumer lighting initiative, providing direct outreach and education to both product retailers and manufacturers. LMS works with corporate decision makers to enlist new retailers into the program. They have monthly calls with corporate trade allies and manufacturers to facilitate getting new products to retailers and assist retailers with design and set up of displays and signage in stores. The LMS staff serves utility programs in both Massachusetts and Rhode Island. Field staff worked with retailers statewide, providing product information, training them to upsell to more efficient products, offering staff events, conducting in-store surveys and point-of-

[42] Interview with Resitvos, March 4, 2021
[43] Interview with CLEAResult, March 3, 2021
[44] Interview with CLEAResult, March 3, 2021

sale promotions, and helping organize school-based lighting product and power strip purchasing and distribution.

In late 2019, Boulder, CO-based Uplight took over from EFI to provide an online marketplace for National Grid to promote and supply efficient lighting and other qualified products, but EFI still conducts incentive management for the program. As the online marketplace matured in 2020, an increase in the number of FTEs associated with Uplight's workforce for the National Grid energy efficiency programs in Rhode Island increased significantly. This increase was spread across the ENERGY STAR® Lighting program, as well as the Residential Consumer Products program and the ENERGY STAR® HVAC Electric and Gas program.

4.3.8 Residential ConnectedSolutions

The Residential ConnectedSolutions reduces peak load through the use of Wi-Fi thermostats and other eligible technologies which may include batteries, lighting, water heaters, pool pumps, electric vehicles, and other devices.

Delivery

The Residential ConnectedSolutions program employed the Demand Response Management System (DRMS) EnergyHub for the program. Customers were assumed to bring their own devices to the program; therefore, there is no incremental labor assumed for program marketing or device installation.

Impacts of COVID-19

National Grid indicated there were no changes to the Residential ConnectedSolutions program due to the COVID-19 pandemic.[45]

[45] Interview with National Grid on March 11, 2021

5. National Grid Employees Analysis[46]

National Grid employees touch all aspects of energy efficiency programs and services provided to gas and electric customers in Rhode Island including program design, delivery, evaluation, and reporting to regulators. Some of these National Grid employees are dedicated to only Rhode Island's energy efficiency programs, and others are dedicated to energy efficiency program matters in multiple states. Still other employees are involved part-time in energy efficiency-related efforts in the context of their other National Grid responsibilities. Since National Grid employees touch many different aspects of programs, their jobs have been presented as a separate category in the analysis in Section 6.

[46] This section is adapted from the 2018 study "Analysis and Recommendations regarding the Current and Future Workforce Associated with 2018 Rhode Island Energy Efficiency Programs", accessed at http://rieermc.ri.gov/wp-content/uploads/2020/07/2018-attachment-5-workforce-report-final.pdf. The use of text is done with the permission of Peregrine Energy Group and National Grid.

6. Analysis of Workforce FTEs for 2020

The following sections describe the methodology and results for the analysis of the workforce FTEs for 2020.

6.1 Overview of Methodology[47]

As in prior years, Guidehouse counts the workforce involved in delivering energy efficiency in full time equivalents (FTEs). This approach to measuring job impacts supports creation of benchmarks for level of effort expended and, by extension, for meaningful comparisons of counts year-to-year and program-to-program. It is also the most cost-effective way to measure and report workforce participation since alternative methods would require far more effort, such as in-depth interviews with all vendors.

Also, as in prior years, and building off of Peregrine's analytical framework, this study only counts labor as being associated with the programs if that labor meets a "but for" test, meaning that "but for" National Grid's programs, this labor would likely not occur. This is not a rigorous rule, nor is it intended to imply causality, but it is a helpful framework for considering the counting of employment associated with certain program activities. The following basic assumptions are made about classes of programs using the "but for" test:

- Retrofit programs, including C&I retrofit, and Single and Multifamily Energy Wise, and Income Eligible programs. All labor associated with these programs is counted, because these programs incentivize customers to install new, more energy efficient equipment to replace still functioning equipment. But for the energy efficiency program, the old equipment would still be in place until they failed.
- New construction programs or replace on burnout programs, including Commercial and Residential New Construction, and ENERGY STAR® Products. In these programs, the customer was planning to or needed to install new equipment and the program incentivized them to install more efficient equipment. There is an incremental cost for the equipment, but there is likely not a significant incremental impact on the labor to install the equipment.[48] For these programs, we counted costs and services associated with program management and engineering support to customers. But for the energy efficiency programs, the project would still have been installed and the program support and management costs would not have been incurred.
- ENERGY STAR® Lighting. Peregrine only counted the time associated with program management. But for the energy efficiency programs, the retailers' staff and customer's installation costs would still be incurred. The program management effort is the only incremental labor expense.

Guidehouse leveraged the same fundamental approach that it used in the 2019 study, where it used spending in 2020 as a proxy for program activity and labor expended. Underlying this

[47] When referencing the 2018 methodology, the text is adapted from the 2018 study "Analysis and Recommendations regarding the Current and Future Workforce Associated with 2018 Rhode Island Energy Efficiency Programs", accessed at http://rieermc.ri.gov/wp-content/uploads/2020/07/2018-attachment-5-workforce-report-final.pdf. The use of text is done with the permission of Peregrine Energy Group and National Grid.

[48] No contractors within the Residential New Construction program were interviewed, there may in fact be some incremental effort required in order to meet air sealing and duct leakage standards that has not been captured. The FTEs within this category may be slightly higher than reported.

approach is the similarity between program offerings from year to year (and in particular the fact that the 2020 program year was the third year of the 2018-2020 Least Cost Procurement Plan). Savings and the number of projects installed were also considered as the primary representation of program activity for 2020, and were examined in some cases to get a deeper understanding of program activity compared to 2019, but spending continued to be the most straightforward indicator; the other parameters have stronger associations with measure mix which could vary from year to year.

Therefore, Guidehouse developed the FTE counts for 2020 by scaling the 2019 FTE counts based on the ratio between the program spending in 2019 and the program spending in 2020.[49] This method provided consistency with the continuum of analyses that have been done over the past several years.

Multiplying the 2019 FTEs by a ratio of 2020 spending to 2019 spending was the initial step of the calculation. Guidehouse made some adjustments to 2020 spending before calculating this ratio.

- First, 2020 spending was adjusted down by 2% to account for inflation and avoid increasing FTEs because labor and materials increased in cost.
- Second, we removed costs associated with allocations to the Rhode Island Infrastructure Bank (RIIB) and Office of Energy Resources (OER) that had also been removed from the 2019 FTE analysis.

While the ratio of spending adjusted as noted in 2020 to 2019 was the foundation of Guidehouse's FTE analysis, there is not a strict linear relationship between energy efficiency spending and employment associated with the programs.

- Some program expenses are less labor intensive than others (e.g., marketing and advertising vs. weatherization services)
- Some program designs are more cost intensive than others (e.g., installing LED products for businesses through the Small Business programs vs. selling discounted LED products through distributors via the Upstream Lighting program).
- Certain energy savings measures are more complicated and laborious than others (e.g., one electrician working alone may install 15 LED ceiling fixtures in a day vs. a team of two may convert 20 streetlights to LED in a day).
- Some measure costs are more labor driven than equipment/material driven. For example, the cost of weatherization measures (e.g., cellulose for installed insulation, and caulking and foam for air sealing) is primarily labor while the cost of HVAC equipment installation is largely in the equipment cost. While these measures often require design engineering as well as field labor to install, the considerable manufacturing labor hours is not represented in program FTE counts, so the FTEs associated with each dollar spent is lower.
- Many vendors will look for ways to improve efficiency of their operations to increase productivity rather than adding staff. This is especially the case where program budget management considerations are communicated to vendors and contracts are increasingly oriented to goals achieved or installations completed.

[49] The 2019 FTE counts were calculated by adjusting, where necessary and supported by data, the FTE values developed by Peregrine in 2018. Attachment A from the 2018 report is reproduced in this report to describe, in detail, Peregrine's methodological approach.

- The extenuating circumstances caused by COVID-19 in 2020 resulted in many programs not running business-as-usual.

Because of these factors, Guidehouse adjusted the scaled numbers where necessary. The adjustments were informed by the interviews Guidehouse conducted with key vendors[50] and National Grid staff and supported by a review of savings installed in 2020. The FTE results are presented below, followed by a description of the adjustments made for each program.

Vendors and National Grid staff that were interviewed provided valuable insight to the analysis and context. Guidehouse was able to complete interviews with all vendors that it had planned to, with the exception of Energy Source, a large Project Expeditor; however, Guidehouse was able to interview two other PEXs.

When COVID-19 was declared a global pandemic in mid-March of 2020, many programs shut down to adhere to the health and safety protocols that were mandated in Rhode Island. As a result, many programs had to stop operations for approximately three months in the spring of 2020. Some programs were able to adapt to the inability to do anything in person and keep operating, but the workforce associated with some programs had to be furloughed. The majority of vendors interviewed throughout this study indicated there were no permanent job losses among their staff due to COVID-19, even if there were furloughs. Therefore, for the purposes of this study, Guidehouse used the FTEs provided by vendors for the end of 2020. This meant only permanent job losses among vendor's staff were captured, and not temporary layoffs or furloughs. Guidehouse's analysis indicates that there were enduring FTE reductions among contractors.

6.2 Summary of 2015-2020 FTEs

Table 6-1 outlines a summary of 2015 to 2020 FTEs by market sector.[51] These results are an aggregate presentation of FTEs by program, which are presented in the following section. Overall, 2020 saw a 14% decrease in FTEs when compared to 2019 from 964.6 to 827.5.

[50] Programs which required additional adjustments were: Small Business Direct Install, Single Family Income Eligible Services, EnergyWise Single Family, Residential Consumer Products, EnergyWise Multifamily, Demand Response and Commercial and Industrial Multifamily.
[51] 2018 to 2015 values are taken from the 2018 report with no adjustments made.

Table 6-1 Summary of FTEs (2015-2020)

	2015	2016	2017	2018	2019	2020
Electric Programs						
Commercial and Industrial	210.0	241.1	263.5	250.0	265.0	203.7
Residential Income Eligible	37.0	42.3	46.0	45.8	65.1	59.1
Residential Non-Income Eligible	125.4	104.0	98.1	168.9[52]	284.8[53]	263.7
Gas Programs						
Commercial and Industrial	32.0	36.1	34.4	31.9	28.7	19.8
Residential Income Eligible	43.8	41.4	36.5	39.4	56.2	38.5
Residential Non-Income Eligible	172.1	159.3	174.9	191.6	212.6	189.2
Other						
CAP Agencies[54]	34.0	38.0	35.0	35.0		
National Grid[55]	41.6	39.9	38.2	39.5	43.3	44.4
Marketing[56]					9.0[57]	9.0
COVID-19 Training						0.3
Total	**695.8**	**702.2**	**726.5**	**802.1**	**964.6**	**827.5**

Source: Guidehouse analysis and 2018 study

6.3 FTEs and Adjustments by Program

The following section outlines FTEs by specific program. For each program, a description of any adjustments made to the FTE count, if applicable, is presented. Note that the 2020 spending has been adjusted for inflation. The RIIB and OER allocations have been removed as it was in 2019 and 2018. Table 6-3 below outlines the percentage changes from 2019 to 2020 for spending and FTEs.

As outlined in the methodology section above, the ratio of 2019 to 2020 spending was used as a basis to estimate 2020 jobs. However, certain adjustments were made to account for

[52] The total for Residential Non-Income Eligible Electric FTEs in 2018 was incorrectly totaled from the component programs and was shown in previous reports at 170.9, when it should have been 168.9. With this correction, the total number of FTEs in 2018 is 802.1. This change has been reflected in Table 2.

[53] Guidehouse updated the 2019 EnergyWise and EnergyWise Multifamily FTEs based on interviews with RISE on February 24, 2021, March 2, 2021 and written communication with RISE on April 1, 2021. RISE indicated there were 224 FTEs from trade allies associated with the EnergyWise program in 2019. Guidehouse believes these FTEs were not accurately captured in 2019 and in the years prior. This has caused the significant increase in FTEs from 2018 to 2019. RISE indicated there were 20 FTEs from RISE and 15 FTEs from subcontractors associated with the gas and electric EnergyWise Multifamily program in 2019. Guidehouse adjusted the 2019 gas and electric FTEs associated with the EnergyWise Multifamily program to align with the information received from RISE in the 2021 interview. Although this re-estimation of FTEs might also be associated with analyses prior to 2019, since Guidehouse did not prepare these analyses, it did not change any FTEs associated with the EnergyWise program prior to 2019.

[54] Note that for the 2019 and 2020 analysis, CAP Agency staff were included within the Residential Income Eligible program under both Electric and Gas.

[55] In years prior to 2019 a 2,016-hour work year was assumed when calculating FTEs. National Grid changed this assumption in recent years to a 1,768-hour work year. This new assumption was implemented beginning in 2019 and resulted in a slight increase in FTEs.

[56] Beginning in 2019, marketing was contracted to a new vendor, resulting in an increase in jobs, these are therefore shown separately.

[57] In the interview with the marketing agency, Mower, on March 12, 2021, Guidehouse discovered there had been a miscommunication in the number of FTEs during the interview with Mower in 2020. Mower had provided the number of FTEs for National Grid programs across all the states the programs run in, not just Rhode Island. There was no change in the number of FTEs associated with the Rhode Island National Grid Rhode Island energy efficiency programs in 2020 when compared to 2019, so Guidehouse adjusted the 2019 value to 9 FTEs.

circumstances where that may not have been appropriate. These adjustments are outlined by program in the sections following Table 6-2 and Table 6-3. Adjustments were applied to both the electric and gas components of the respective program.

Table 6-2Table 6-2 outlines FTEs for both 2019 and 2020. Since spending was heavily relied upon to derive 2020 counts, the spending by program for both years is also presented. Note that the 2020 spending has been adjusted for inflation. The RIIB and OER allocations have been removed as it was in 2019 and 2018. Table 6-3 below outlines the percentage changes from 2019 to 2020 for spending and FTEs.

As outlined in the methodology section above, the ratio of 2019 to 2020 spending was used as a basis to estimate 2020 jobs. However, certain adjustments were made to account for circumstances where that may not have been appropriate. These adjustments are outlined by program in the sections following Table 6-2 and Table 6-3. Adjustments were applied to both the electric and gas components of the respective program.

Table 6-2 FTEs and Spend by Program (2019-2020)

	2019 Spend	2019 FTEs	2020 Spend[58]	2020 FTEs
Electric Programs				
Commercial & Industrial (C&I)		**265.0**		**203.7**
Large Commercial New Construction	$6,360,691	1.1	$6,092,151	1.0
Large Commercial Retrofit	$26,774,706	220.3	$21,058,081	171.3
Small Business Direct Install	$7,774,107	36.4	$7,214,273	22.5
Commercial ConnectedSolutions	$1,826,320	7.3	$2,235,798	8.9
Other	$15,435	0.0	$577	0.0
Low-Income		**65.1**		**59.1**
Single Family Income Eligible Services	$9,440,815	32.4	$5,737,161	34.2
Income Eligible Multifamily	$2,907,368	13.4	$1,191,810	5.5
CAP Agencies Staff		19.4		19.4
Residential		**284.8**		**263.7**
EnergyWise	$15,747,807	179.3[59]	$14,829,676	147.2
Residential Consumer Products	$2,437,586	8.9	$2,151,302	10.4
EnergyWise Multifamily	$1,189,404	24.5[60]	$1,488,781	14.0
Home Energy Reports	$2,512,231	2.5	$2,110,791	2.5
Residential New Construction	$863,236	2.8	$910,885	3.0
ENERGY STAR® HVAC	$2,427,970	63.4	$3,231,652	84.4
ENERGY STAR® Lighting	$13,340,861	3.0	$8,706,886	2.0
Residential ConnectedSolutions	$167,428	0.3	$547,700	0.3
Other	$41,300	0.0	$127,911	0.0
Natural Gas Programs				
Commercial & Industrial (C&I)		**28.7**		**19.8**
Large Commercial New Construction	$2,768,494	0.9	$2,620,106	0.8
Small Business Direct Install	$91,873	0.7	$128,906	0.4
Large Commercial Retrofit	$4,794,177	22.3	$2,912,996	13.6
Commercial & Industrial Multifamily	$977,413	4.8	$320,512	5.0
Other	$51,229	0.0		0.0
Low-Income		**56.2**		**38.5**
Single Family Income Eligible Services	$3,691,134	23.4	$2,139,996	12.8
Income Eligible Multifamily	$3,093,076	16.1	$1,736,671	9.0
CAP Agency Staff		16.6		16.6
Residential		**212.6**		**189.2**
ENERGY STAR® HVAC	$2,350,813	80.4	$2,418,905	82.7
EnergyWise	$9,109,589	118.8[59]	$8,576,679	97.4
EnergyWise Multifamily	$1,002,083	10.5[60]	$634,124	6.0
Home Energy Reports	$411,843	0.5	$352,253	0.5
Residential New Construction	$598,085	2.4	$419,675	2.6
Other		0.0		0.0
Other				
National Grid Staff		43.3		44.4
Marketing		9.0[61]		9.0
COVID-19 Training		0		0.3
Total		**964.6**		**827.5**

Source: Guidehouse analysis

[58] 2020 spending has been adjusted for inflation; values shown are in 2018 dollars, assuming an inflation rate of 2% per year.

[59] RISE indicated in an interview on March 1, 2021 that there were 72.5 RISE FTEs associated with the EnergyWISE program in 2019. On April 1, 2021, RISE indicated in written communication there are 224 contractor FTEs associated with the EnergyWise program in 2019. The 2019 FTE values were updated to reflect this new information, and the FTEs were split between the gas and electric program based on the 60% electric to 40% gas ratio provided in the interview.

Table 6-3 Percentage Increase from 2019 to 2020 by Program

	Percentage Change in Spending	Percentage Change in FTEs[62]
Electric Programs		
Commercial & Industrial (C&I)		
Large Commercial New Construction	-4%	-4%
Large Commercial Retrofit	-21%	-22%
Small Business Direct Install	-7%	-38%
Commercial ConnectedSolutions	22%	23%
Other	-96%	-96%
Low-Income		
Single Family Income Eligible Services	-39%	6%
Income Eligible Multifamily	-59%	-59%
CAP Agencies Staff		0%
Residential		
EnergyWise	-6%	-18%
Residential Consumer Products	-12%	17%
EnergyWise Multifamily	25%	-43%
Home Energy Reports	-16%	0%
Residential New Construction	6%	6%
ENERGY STAR® HVAC	33%	33%
ENERGY STAR® Lighting	-35%	-35%
Residential ConnectedSolutions	227%	0%
Other	210%	0%
Natural Gas Programs		
Commercial & Industrial (C&I)		
Large Commercial New Construction	-5%	-5%
Small Business Direct Install	40%	-43%
Large Commercial Retrofit	-39%	-39%
Commercial & Industrial Multifamily	-67%	4%
Other	-100%	0%
Low-Income		
Single Family Income Eligible Services	-42%	-46%
Income Eligible Multifamily	-44%	-44%
CAP Agency Staff		0%
Residential		
ENERGY STAR® HVAC	3%	3%
EnergyWise	-6%	-18%
EnergyWise Multifamily	-37%	-43%
Home Energy Reports	-14%	0%
Residential New Construction	-30%	10%
Other		0%

Source: Guidehouse analysis

[60] RISE indicated in an interview on February 24, 2021 that the 2019 EnergyWise Multifamily FTEs associated with the program equaled 20 FTEs from RISE and 15 FTEs from contractors, across both the electric and gas programs. The 2019 FTE values were updated to reflect this new information, and the 35 FTEs were split between the gas and electric program based on spending.

[61] Mower indicated that there were 9 FTEs associated with the Rhode Island program in 2019 and 2020; therefore, Guidehouse updated the 2019 FTEs associated with marketing to reflect this information.

[62] Note where the % increase in spending is not equal to the % increase in FTEs, an explanation by program is found in the sections to follow.

6.3.1 Small Business Direct Install

RISE indicated that there were 16 FTEs associated the Small Business Direct Install Program (Gas and Electric) in Rhode Island. Since RISE is only responsible for servicing approximately 70%[63] of the Small Business Direct Install customers, Guidehouse scaled the 16 FTEs up to account for the other 30% of the market, which is serviced by CDO. This resulted in 22.5 FTEs, and Guidehouse distributed the 22.5 FTEs across the gas and electric sides of the program based on the 2020 program spending ratio.[64]

6.3.2 Single Family Income Eligible Services

CLEAResult indicated there were 3 CLEAResult FTEs associated with the Single Family Income Eligible Services program in Rhode Island in 2020, in addition to 20 weatherization contractors, 19 heating contractors and 5 specialty contractors. Guidehouse split the 47 FTEs across the gas and electric sides of the program based on the 2020 spending ratio.[65]

6.3.3 EnergyWise

In 2020, National Grid increased the incentives for weatherization from 75% to 100%. This was done to encourage participation in the program despite the COVID-19 pandemic. This led to a smaller decrease in program spending than otherwise would have occurred due to COVID-19. Since Guidehouse manually adjusted the FTEs associated with the EnergyWise program based on information from an interview with RISE, there was no need to make any adjustments to the program spending due to this increased incentive.

RISE indicated there were 61.5 RISE FTEs associated with the EnergyWise program in Rhode Island in 2020. The trade allies associated with the program in 2020 totaled 252 FTEs. RISE indicated that the FTEs associated with the trade allies in 2019 totaled approximately 311 and the RISE FTEs totaled 72.5.

Interviews with both RISE and CLEAResult indicated that the FTEs associated with the trade allies spend approximately 10% of their time on the Residential New Construction program[66] and the other 90% of their time on the EnergyWise program. Additionally, RISE estimated that 80% of the trade allies' FTE time is spent in RI, and the other 20% is spent in MA.[67] Therefore, Guidehouse arrived at the FTEs for the EnergyWise program by adding 72% (90% multiplied by 80%) of the 252 FTEs associated with the trade allies (i.e., 181.4) to the 61.5 FTEs from RISE and 1.75 FTEs associated with the QA inspections. Guidehouse split the FTEs across the gas and electric programs based on the percent of projects provided by RISE that are electric versus gas (i.e., 60% electric projects vs. 40% gas projects).[68] The result is 147.2 FTEs for the electric program and 97.4 FTEs for the gas program. Because contractor labor for new

[63] Interview with National Grid, February 16, 2021

[64] Interview with RISE, February 24, 2021

[65] Interview with CLEAResult, February 24, 2021

[66] Due to the "but for" test, Guidehouse did not include the 10% of the 324 trade ally FTEs in the Residential New Construction FTE count.

[67] Written communication with RISE, April 1, 2021

[68] Interview with RISE, March 2, 2021

construction is assumed to occur regardless of the program, their labor split is not added to the New Construction program FTEs.

Guidehouse adjusted to the 2019 FTE values across the gas and electric programs to reflect the information provided by RISE in 2020 and calculated the 2019 FTE values using the same method as the 2020 FTEs. This resulted in 179.3 FTEs for electric and 118.8 FTEs for gas for EnergyWise in 2019.

6.3.4 Residential Consumer Products

The online marketplace that Uplight took over in late 2019 did not have any impact on the 2019 FTE count because the program was so new. However, in 2020 this program matured and the 10[69] FTEs associated with Uplight were allocated to the Residential Consumer Products, ENERGY STAR® Lighting and ENERGY STAR® HVAC based on 2020 program spend ratios.

Guidehouse believes that prior to 2020, the ARCA FTEs associated with the Refrigerator, Freezer and Dehumidifier Recycling program did not capture the FTEs required to pick up the appliances at customer home and transport them to the Franklin recycling center in MA. In addition to the 5.1 FTEs that make up the Franklin recycling center workers, as well as the administrative, account management and call center jobs, 4 FTEs are dedicated to picking up appliances and transporting them to the Franklin recycling center and are included in the 2020 FTE count.[70]

6.3.5 EnergyWise Multifamily

In 2020, National Grid increased the incentives for weatherization from 75% to 100%. This was done to encourage participation in the program despite the COVID-19 pandemic. This led to an increase in program spending than otherwise would not have occurred due to COVID-19. Since Guidehouse manually adjusted the FTEs associated with the EnergyWise program based on information from an interview with RISE, there was no need to make any adjustments to the program spending due to this increased incentive.

RISE indicated a significant decrease of FTEs that work on the EnergyWise Multifamily program in 2020, when compared to 2019. In 2019, there were 20 RISE FTEs that worked on the EnergyWise program, but in 2020 that had decreased down to 14 FTEs. Similarly, in 2019 there were 15 FTE weatherization contractors that worked on the program and in 2020 this decreased to 6 FTEs. Guidehouse split the 20 FTEs between the gas and electric programs based on the 2020 spending ratio.

6.3.6 Home Energy Reports

The Home Energy Reports program is not dependent on spending the way other programs are. It is based on volume. The volume of home energy reports in 2020 was relatively consistent with the volume of reports in 2019; therefore, Guidehouse held the 2020 FTEs constant at the 2019 value.

[69] Interview with Uplight, March 9, 2021
[70] Interview with ARCA, March 1, 2021

6.3.7 Residential ConnectedSolutions

Based on an interview with Paul Wassink of National Grid, Guidehouse confirmed that the increase in spending on the Residential ConnectedSolutions program was because of an increase in incentives, mostly due to the Daily Dispatch option and was not labor related. Therefore, Guidehouse held the Residential ConnectedSolutions FTE count for 2020 constant at the 2019 value.[71]

6.3.8 Commercial and Industrial Multifamily

RISE indicated that there were no changes in the FTEs that worked on the Commercial and Industrial Multifamily program in 2020 when compared to 2019. Therefore, Guidehouse did not scale FTEs based on the 2019 to 2020 spending ratio, but instead held constant at 5 FTEs.[72]

6.3.9 National Grid Employees

In 2020, National Grid FTEs were reported using data provided by National Grid. National Grid report 78,467 employee hours relating to Rhode Island Energy Efficiency work. This amounted to 44.4 FTEs. This an increase of 1,861 hours compared to 2019 National Grid employee hours relating to Rhode Island Energy Efficiency work, which amounted to about a 1 FTE increase. This assumed a 1,768-hour work year to be consistent with the hours used in calculating FTEs for other workforce members. Note that this assumption differs from years prior to 2019 reporting, where a 2,016-hour work year was assumed.

6.3.10 Marketing and Customer Outreach

Marketing FTEs were reported based on a vendor interview with Mower. In 2019, Mower reported 36,200 payroll hours, amounting to 20.5 FTEs, again assuming a 1,768-hour work year. Guidehouse recognized this is a large increase from the 3.7 FTEs reported for Marketing in 2018. After discussions with National Grid, the 2018 FTE reported value seems to understate the effort within this service, however, the 2019 reported value seemed to overstate them. Therefore, the average of the two - 12.1 FTEs - was used for Marketing in 2019.

During the interview with Mower in 2021, Guidehouse confirmed there was a miscommunication between Mower and Guidehouse during the previous year's interview. Mower had reported the payroll hours associated with all National Grid Energy Efficiency work, across multiple states, not just Rhode Island. Guidehouse confirmed that there are only 9 FTEs associated with the Energy Efficiency work in Rhode Island specifically, and there was no change in the 2019 FTEs (i.e., if not for the miscommunication, there would have been 9 FTEs in 2019 as well).

Included in this category are the FTEs associated with Comprehensive Marketing because its impact flows to many programs.

[71] National Grid interview, March 11, 2021

[72] Interview with RISE, March 3, 2021

6.3.11 COVID-19 Training

Since this was the first year PPE protocols were needed due to a global pandemic, Guidehouse did not scale Environmental Health and Engineering FTEs based on spending. Instead, Guidehouse leveraged information received through an interview with the vendor, who reported 0.3 FTEs associated with the Rhode Island Energy Efficiency programs in 2020.

6.3.12 Rebate Processing, EERMC Consultants and Evaluation

Jobs relating to rebate processing, EERMC consultants and evaluation were calculated using distributions within these categories from 2019 using the following procedure. Once the scaling for all programs was complete, the column “Market/Program Totals with Support Services Allocations” in Table 6-4 FTEs by Job Function in 2020 below was populated, combining values for programs that have both gas and electric components. From there, the jobs were distributed across the three “Direct Service Providers” columns based on the distributions in the 2019 report. For example, if “Third Party Program Admin & Mgmt” jobs represented 10% of all EnergyWise FTEs in 2019, this percentage was applied to the 2020 total EnergyWise FTE value to determine how many FTEs fell into the “Third Party Program Admin & Mgmt” category. Because the support services jobs were embedded in the total program FTEs in 2019 and not associated with a particular program, the sum of the “Direct Services Providers” columns is not necessarily equal to the total amount of program jobs. This leaves a certain number of “leftover” jobs that belong within the “Support Services Providers” columns. Since the marketing jobs and the COVID-19 training jobs were already known based on interviews, these can be removed from the “leftovers.” Therefore, the remaining jobs can be distributed across Rebate Processing, EERMC Consultants, and Evaluation. This is done using the ratio of jobs in each category from 2019. For example, if Rebate Processing accounted for 35% of jobs within the 3 remaining categories, 35% of the “leftover” jobs were assigned to Rebate Processing. This process continues for all of Rebate Processing, EERMC Consultants, and Evaluation. Spending for 2020 was then compared to 2019 to ensure the number of jobs assigned was reasonable.

6.4 FTEs by Job Function

Table 6-4 provides a more in-depth breakout of the workforce, providing additional detail regarding the specific functions of jobs associated with markets and programs and the level of effort they contribute.

Table 6-4 FTEs by Job Function in 2020

Markets and Programs	Market/Program Totals with Support Services Allocations	Direct Services Providers			Support Services Providers				
		Third Party Program Admin & Mgmt	Auditors/Installers, Technical Support, QA Inspections	Installations by Vendors & Trades	Rebate Processing	Marketing	COVID-19 Training	EERMC Consultants	Evaluation
Residential Programs	**452.9**								
EnergyWise	244.6	24.7	63.7	152.0					
ENERGY STAR® HVAC	167.1	1.1	0.0	166.0					
EnergyWise Multifamily	20.0	3.0	4.4	12.2					
Residential New Construction	5.6	1.4	3.8	0.0					
Residential Home Energy Report	3.0	2.9	0.0	0.0					
Residential Connected Solutions	0.3	0.1	0.1	0.0					
ENERGY STAR® Lighting/Appliances	12.4	1.8	10.6	0.0					
Income-Eligible Programs	**97.5**								
Income Eligible Single Family	47.0	2.3	0.0	43.1					
Income Eligible Multi Family	14.5	2.7	5.0	6.6	4.0	9.0	0.3	2.8	4.6
Community Action Agency Staff	36.0	0.0	36.0	0.0					
Commercial Programs and Initiatives	**223.4**								
C&I Small Business	28.0	11.0	5.3	11.6					
C&I Large Commercial Retrofit Electric	141.5	0.0	2.0	139.0					
C&I Upstream Lighting/HVAC*	19.4	6.1	0.0	12.8					
C&I Tech Support*	0.8	0.0	0.0	0.8					
Industrial Energy & Energy Smart Grocer*	4.4	2.2	0.0	2.2					
C&I Multifamily	5.0	0.5	0.0	1.6					
C&I New Construction	1.9	0.6	1.3	0.0					
Commercial Connected Solutions	8.9	4.5	4.5	0.0					
C&I Large Commercial Retrofit Gas	13.6	0.2	2.2	10.8					
National Grid Staff	**44.4**								
Total	827.5								

Source: Guidehouse analysis

*Note that these are not official programs but are initiatives. They are included separately for added details and to stay consistent with previous report

7. Counterfactual 2020 FTEs

2020 was a unique year due the global pandemic caused by COVID-19. In mid-March, many programs were shut down for two to three months due to the stay-at-home protocols in Rhode Island. When the programs did resume in the summer, there were extra safety precautions that needed to be taken and many programs had to make significant adjustments to the way they were run for them to be safe during the pandemic. This included transitioning to work from home for much of the workforce associated with the Rhode Island Energy Efficiency programs and virtual communications in the place of face-to-face interactions wherever possible. Due to this disruption in business as usual, Guidehouse completed a "counterfactual FTE" scenario to assess the impacts of COVID-19 across all programs. To determine the impacts of COVID-19, Guidehouse compared the 2020 counterfactual FTEs with the actual 2020 FTEs which were determined from the methodology outlined above.

Counterfactual FTEs were calculated by multiplying the ratio of 2020 planned spending to 2019 planned spending by the actual FTEs in 2019. This method is based on the premise that actual program activity would have scaled according to plan, as indicated by the ratio of budgeted funds. Implicit in this assumption is that actual expenditures relative to plan in 2020 would have been similar to 2019; on this basis, everything can be scaled according to plan.

Guidehouse also asked vendors throughout the interviews, "Had it not been for COVID-19, what do you think the FTEs in 2020 would have been?" Not all vendors were able to answer this question, as it is difficult to know what would have happened in some programs had it not been for COVID-19. However, interviewees for three programs (i.e., Large Commercial Retrofit, Commercial and Industrial Multifamily and Residential New Construction) stated that COVID-19 had no impact on the number of FTEs associated with the program. The COVID-19 pandemic may have had a less significant impact on these programs because the sites that the workforce visit to complete their work were mostly uninhabited or, in the case of C&I Multifamily, dependent on the particular buildings to which field staff was granted access. Guidehouse did not make any adjustments to counterfactual FTEs based on responses to that question, because vendors did not provide information as to whether FTEs would have increased had it not been for COVID-19[73]. Therefore, no concrete conclusions could be drawn from the interviews that could have resulted in manual adjustments made to the counterfactual FTEs.

This section assesses the impact COVID-19 had on FTEs across the Rhode Island Energy Efficiency programs by comparing the counterfactual FTEs to the actual FTEs for 2020, as shown in the section above. **Error! Not a valid bookmark self-reference.** and **Error! Reference source not found.** below display the results of Guidehouse's counterfactual FTE analysis, as well as the percent decrease between the counterfactual 2020 FTEs and the actual 2020 FTEs. The analysis shows that, if not for the pandemic, FTEs would have increased by about 2% relative to 2019.

[73] Also, in the case of Large Commercial Retrofit, Guidehouse could not determine whether the interviewed vendors' response to the counterfactual question were indicative of the experience across the entire program.

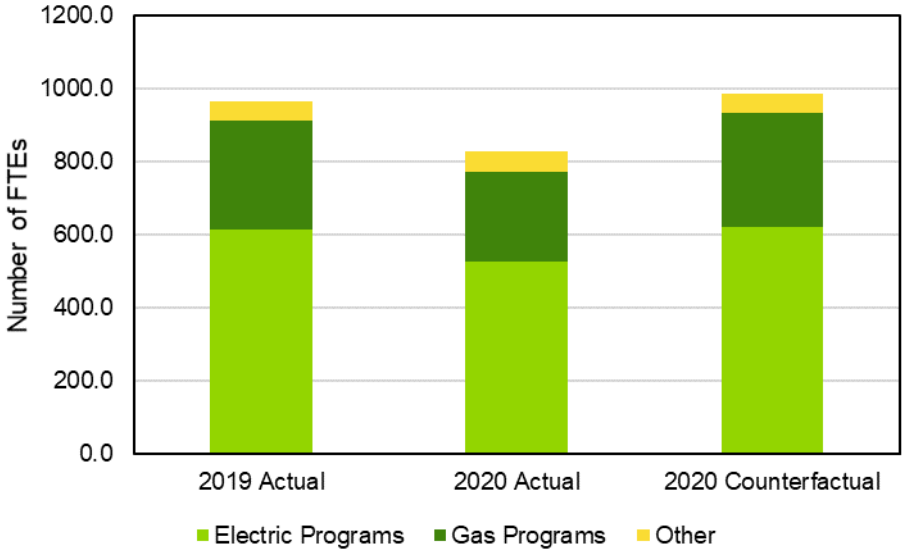
Table 7-1. FTEs and Spend by Program (2019-2020)[74]

	2019 Planned Spend	2019 Actual FTEs	2020 Planned Spend	2020 Counterfactual FTEs	% Change in FTEs (2020 Counterfactual to 2020 Actual)[75]
Electric Programs					
Commercial & Industrial (C&I)		**265.0**		**280.1**	
Large Commercial New Construction	$4,937,396	1.1	$5,128,542	1.1	-8%
Large Commercial Retrofit	$20,937,767	220.3	$22,877,085	240.7	-29%
Small Business Direct Install	$8,541,961	36.4	$7,274,700	31.0	-28%
Commercial ConnectedSolutions	$1,984,446	7.3	$1,997,770	7.3	22%
Other	$39,350	0.0	$63,527	0.0	0%
Low-Income		**65.1**		**68.0**	
Single Family Income Eligible Services	$11,465,420	32.4	$12,347,279	34.9	-2%
Income Eligible Multifamily	$3,316,572	13.4	$3,411,194	13.7	-60%
CAP Agencies Staff		19.4		19.4	0%
Residential		**284.8**		**271.8**	
EnergyWise	$15,468,138	179.3	$15,010,741	174.0	-15%
Residential Consumer Products	$2,082,843	8.9	$2,113,768	9.0	15%
EnergyWise Multifamily	$3,004,776	24.5	$2,695,445	22.0	-36%
Home Energy Reports	$2,589,408	2.5	$2,622,149	2.6	-1%
Residential New Construction	$841,796	2.8	$935,653	3.1	-5%
ENERGY STAR® HVAC	$2,670,547[76]	63.4	$2,427,072	57.6	46%
ENERGY STAR® Lighting	$14,674,729	3.0	$14,778,749	3.0	-35%
Residential ConnectedSolutions	$277,559	0.3	$443,702	0.4	-37%
Other	$158,346	0.0	$234,414	0.0	-15%
Natural Gas Programs					
Commercial & Industrial (C&I)		**28.7**		**31.6**	53%
Large Commercial New Construction	$4,131,337	0.9	$2,549,583	0.5	-42%
Small Business Direct Install	$122,006	0.7	$120,153	0.7	-47%
Large Commercial Retrofit	$4,131,337	22.3	$4,699,230	25.4	1%
Commercial & Industrial Multifamily	$900,363	4.8	$930,350	5.0	0%
Other		0.0			
Low-Income		**56.2**		**60.1**	
Single Family Income Eligible Services	$4,914,551	23.4	$5,721,192	27.3	-53%
Income Eligible Multifamily	$2,875,190	16.1	$2,892,629	16.2	-44%
CAP Agency Staff		16.6		16.6	
Residential		**212.6**		**221.3**	
ENERGY STAR® HVAC	$2,122,453	80.4	$2,588,487	98.0	-16%
EnergyWise	$8,300,249	118.8	$7,792,797	111.6	-13%
EnergyWise Multifamily	$1,644,631	10.5	$1,453,343	9.2	-35%
Home Energy Reports	$439,121	0.5	$453,200	0.5	-3%
Residential New Construction	$723,171	2.4	$596,390	2.0	33%
Other		0.0		0.0	
Other					
National Grid Staff		43.3		**44.38**	0%
Marketing		9.0		9.0	0%
COVID-19 Training		0.0		0.0	
Total		**964.6**		**986.2**	

Source: Guidehouse analysis

[74] 2020 and 2019 spending has been adjusted for inflation; values shown are in 2018 dollars, assuming an inflation rate of 2% per year.
[75] Note where the % increase is zero the interviews with vendors revealed that COVID-19 had no impact on the number of FTEs associated with the Energy Efficiency Program in Rhode Island.
[76] For the 2019 report, HEAT loan spending was removed from the ENERGY STAR® HVAC program. For the purposes of the counterfactual analysis, HEAT loan spending was included in the 2019 planned spending.

Figure 7-1 2019 and 2020 Actual FTEs Compared to 2020 Counterfactual FTEs



8. Qualitative Findings and Observations

Through the interview process, several qualitative findings and observations were made, these are summarized in this section. Guidehouse notes that our interviews confirmed our basic approach of scaling 2019 FTEs by spending and making adjustments based on interview findings. 2020 is the third year of energy efficiency implementation under the 2018-2020 Least Cost Procurement Plan. However, it is possible that this hybrid approach, along with the accounting of changed program elements such as the marketplace, could be applicable for a 2021 study.

The following observations are ones that were brought up in several interviews and have been aggregated here; some of these are comments about the status of the program delivery effort and do not necessarily impact FTEs. The observations that were stated in the 2019 report re-occurred as themes in the 2020 interviews, so they were re-stated in this report.

- Quicker access to National Grid data from vendors. Vendors stated that some receive data once a month but would prefer to receive data more often. If data is received once a month, and action needs to be taken to correct issues from the previous month, they find they are already delayed.[77]
- As the workforce gets older, there is an opportunity to develop a new skill set. Vendors noted a shift away from non-network lighting measures and a need for more mechanical contractors. For example, it was noted that there is a lack of refrigeration contractors who can execute National Grid programs.[77]
- Sooner decisions regarding program plans would enable better vendor planning and workforce management. Vendors noted that final decisions are occasionally made very close to the program launch date which does not leave them enough time to execute.[77] For example, when the HEAT Loan rebate was cancelled in January of 2020, some heat pump contractors indicated they were unaware of the cancellation until it happened.
- More coherent communication between the implementation and strategy groups at National Grid would result in more effective direction to vendors and, ultimately, better run programs. Some vendors indicated that they perceive communication challenges internally at National Grid, between who makes decisions and who implements changes that impacts them.
- Despite the challenges presented in 2020 due to COVID-19, the programs were able to adapt to the new reality of a global pandemic. For example, the majority of programs were able to transition to virtual trainings and audits instead of doing things face to face. Though the actual FTEs were not as high in 2020 as the counterfactual case, across all programs not as many FTEs were lost as expected due to COVID-19. Most of the loss of FTEs came from the contractors and not the program managers.

The following observations are ones that were specific to the vendor interviewee's program. For many of the programs, all of 2020 was focused primarily on dealing with the impacts that COVID-19 had on the programs; therefore, there were less details discussed regarding regular program changes throughout the interviews. Many vendors reported that no COVID-19 cases were identified as resulting from transmission between the workforce and customers. Please see section 4 for further discussion on the impacts that COVID-19 had on the programs. Note

[77] This is an observation that was also observed in the 2019 interviews.

that interviews were not conducted with vendors in every program, so the observations below are not comprehensive.

8.1 Industrial Initiative[78]

- Leidos noted that, in 2020, there was an increase in Industrial New Construction and an increase in performance lighting activities.
- Leidos noted that it is difficult for them to staff their team because they operate on thin margins, yet the skill set required to provide a credible resource for the industrial projects is expensive.

8.2 Upstream Lighting Initiative[79]

- Throughout 2020, spiff promotions were run to promote lighting products. For example, for every lighting product sold by distributors that had controls, the sales individual who sold it would earn $5.00. CLEAResult issued reward cards to the sales individual for these sales.
- This increased the amount of work required for the distributors, because they had to track who was selling each item. Additionally, this created more work for the CLEAResult team, as they had to distribute incentives.

8.3 Income Eligible Single Family Program[80]

- CLEAResult noted that there was a loss of senior staff at some of the agencies. This meant that experienced auditors were replaced with new staff who required training. This additional training effort slowed down their progress. [81]
- CLEAResult had planned to implement a new training program that would show new employees the different avenues they could take for career progression. This would result in higher workforce retention, improved communication and improved internal documentation to streamline employee development. However, due to COVID-19, CLEAResult had to focus its efforts elsewhere in 2020. Instead, they plan to implement this new training program in 2021.

8.4 ENERGY STAR® HVAC[82]

- CLEAResult noted that the cancellation of National Grid's heat pump initiative led to a decrease in heat pump installations in 2020.
- Restivos, one of the largest heat pump contractors in the program, indicated that when the heat pump program was cancelled in early 2020, it decided not to bring on the new hires it had planned to because it expected to see a significant decrease in business. However, despite the cancellation of the heat pump initiative, they still completed more

[78] Interview with Leidos, March 3, 2021
[79] Interview with CLEAResult, March 4, 2021
[80] Interview with CLEAResult, March 2, 2021
[81] Interview with CLEAResult, February 24, 2021
[82] Interview with CLEAResult, March 3, 2021

projects in Rhode Island in 2020 when compared to 2019, and it was a record year for the company. Restivos did bring on new employees at the end of 2020 to meet the demand of their business.[83]

8.5 EnergyWise[84]

- RISE noted that there were no program changes in 2020 that did not relate to the COVID-19 pandemic.
- Had it not been for COVID-19, RISE expects that they would have increased their workforce.
- RISE noted hesitation in the contractor community in 2020 to increase their crews to meet the fluctuating incentives and demand throughout the year. This was because they were unsure if the work would continue. However, at the time of the interview with RISE, they indicated there was significant program backlog and contractors had the confidence to begin growing their businesses again.

8.6 EnergyWise Multifamily[85]

- RISE did not note any changes that occurred in the EnergyWise Multifamily program that were not a direct result of COVID-19.

8.7 Appliance Recycling Initiative[86]

Similar to RISE, ARCA did not note any program changes that occurred other than those directly related to COVID-19.

[83] Interview with Restivos, March 4, 2021
[84] Interview with RISE Engineering, March 2, 2021
[85] Interview with RISE Engineering, February 24, 2021
[86] Interview with ARCA, March 1, 2021

Appendix A. Methodologies Used for Assessing Employment[87]

Peregrine has used a consistent calculation of FTE employees in this study to provide a definable and comparable measure of job impacts. The number of individual employees associated with National Grid Programs in Rhode Island well exceeds total FTEs reported. This was confirmed by interviews with companies who provide support services or manage programs for National Grid and by our analysis of field installation of individual program measures. Individuals who perform this work may be full-time or part-time employees, may work solely in Rhode Island or divide their time between Rhode Island utility programs and utility programs in other states, or may be engaged both in energy efficiency activity and other work for which their trade licenses qualify them. FTE counts are determined based on: reports from employers of actual Rhode Island hours tracked; from allocations of total labor hours to Rhode Island using relative numbers of Rhode Island customers served by a team vs. customers in other states, primarily Massachusetts; or using unit counts of installed materials (e.g., a particular lighting fixture) or number of projects completed (e.g., a residential home weatherization) installed to calculate total labor hours.

For non-installation roles, many companies interviewed told Peregrine that they employed multiple individuals with specialized skills or in discrete roles that were necessary and important to delivering a comprehensive, high quality product or service. However, only a portion of each employee's total annual hours might be attributable to Rhode Island energy activity.

For unit installed-based calculations, totals for individual items installed are converted into hours or days by applying the average per unit installation labor time and then converted total hours into FTEs by dividing by 1,760[88] hours or 220 days per FTE year. Similarly, specific types of work completed, such a weatherization job or heating system installation, are assigned an average labor time for an installation crew, and counts are multiplied by the time for each to generate total days or hours and an FTE number.

Some examples:

- Engineers providing technical support to customers. National Grid's Large Commercial and Industrial customer base in Rhode Island is relatively small, the call for engineering support is very intermittent, the engineering expertise that different customers need varies. Rather than retaining engineers with a variety of skills to be available to assist Rhode Island customers, National Grid has entered into master services agreements with multiple consulting engineering firms from whom expert engineering can be purchased as needed. However, since business economics necessitate that these consulting engineering firms' keep their staff utilized and billable most of the time, the majority of preferred engineering firms do other work. Some, like RISE Engineering, provide similar energy engineering services to multiple utility programs, in multiple states, to utility and non-utility clients, or to a combination of these.

[87] This section is reproduced from pages 53-55 and Attachment A of the 2018 report.
[88] Guidehouse used 1,768 hours in its analysis, consistent with information provided by National Grid.

- Firms that manage programs targeting specific customer sub-sectors and offer market-specialized technical services in multiple utility jurisdictions. The Energy Smart Grocer program delivered by CLEAResult and the Industrial program delivered by Leidos, Inc. exemplify this dynamic in the commercial market. Both companies are headquartered outside of New England, but they have local offices in Westborough and Framingham, Massachusetts, respectively. Both have field staff that spent a portion of their time helping National Grid customers in Rhode Island, but supported many more such projects for utility customers in Massachusetts. The firms dispatch staff, as required, to advance individual projects in Rhode Island, but they could not cost effectively deliver this program to Rhode Island alone, given the size of the target market in the state. For both programs, the customers select the contractors they prefer to do the installations.
- Programs targeting regional retailers. The contractors delivering the residential ENERGY STAR® Lighting and Appliance programs (TRC Companies) or the commercial Upstream Lighting program (CLEAResult) and Upstream HVAC program (Energy Solutions) work with and mobilize regional distributors and retailers to stock and promote energy efficient products preferred by utilities. National Grid and other utilities, covering both Rhode Island and Massachusetts, have recognized that using a single contractor to manage this effort across multiple territories creates programmatic benefits and economies of scale. Time spent supporting Rhode Island programs is allocated out of the total staff deployed, which may include individuals dedicated wholly or in part to Rhode Island.
- National Grid's Rhode Island team. National Grid itself reported 79,566 employee hours billed against Rhode Island energy efficiency program-related accounts, equal to 39.5FTE employees. Those hours and that FTE count represent not only the aggregate contributions of Rhode Island-dedicated employees, but also employees with system-wide or similar other-state responsibilities who contributed fractionally to the Rhode Island FTE total.
- RISE Engineering, based in Cranston, Rhode Island. RISE has been a partner to National Grid in Rhode Island since the inception of energy efficiency programs over 30 years ago. Today, RISE is the lead vendor for or a major participant in many of the largest programs offered in Rhode Island by National Grid, including EnergyWise Single Family, EnergyWise Multifamily, Small Business Direct Install, Large Commercial and Industrial Retrofit, and the Commercial and Industrial Gas programs. For the complex, labor intensive, high volume, EnergyWise Single Family program, RISE's total FTE counts and the number of individual personnel contributing to the program are nearly equal. The large customer volume of EnergyWise Single Family enables RISE to employ full-time staff to serve in specific program roles, such as auditors, installers, and inspectors. This creates stability and consistency that benefits customers, National Grid as well. Further, similarities between staffing needs across multiple programs, e.g., for engineering, materials handling, or accounting, have allowed RISE to pool staff to provide higher levels of utilization and improved staffing economies. Additionally, similarities in technical needs between programs, e.g., for electricians, allowed RISE to employ a baseline number of full-time technical specialists, but then supplement them on an as needed basis with sub-contracted assistance. Having this capacity has, in turn, enabled RISE to be a major player as a Project Expediter supporting National Grid's Large Commercial Retrofit program, generating business opportunities, managing more complex installations, securing equipment and materials, and providing or contracting for installation labor. And, at the same time, as new business opportunities have emerged

and been secured in neighboring states, RISE has been able to grow further, shifting specialized staff back and forth between states as demand for services dictates, while maintaining or increasing the efficiency of staff utilization and improving labor economics.

Peregrine has made a conscious effort to use consistent methodologies to count jobs year-to-year as it has undertaken studies for National Grid of the workforce associated with energy efficiency programs. Our goal has been to maximize the potential for apples to apples comparisons of total jobs and program specific workforce jobs. Further, we believe the methodologies we have used are conservative in their counting and generally understate the employment impacts of National Grid programs.

A.1 Program Support Service Providers

A.1.1 National Grid

National Grid provided to Peregrine a summary of billed hours for employees involved with individual energy efficiency programs in Rhode Island in 2018. Responsibilities of these employees included program planning and development, program administration, regulatory affairs, marketing, evaluation, and market research. Peregrine is reporting National Grid FTEs as a separate category for purposes of this study and not allocating them to specific programs or groups of programs.

A.1.2 Support Services Contractors

Peregrine interviewed most of the larger contractors who supported National Grid in these activities, and they described their roles and responsibilities and provided counts and hours for employees supporting National Grid in Rhode Island. The FTEs Peregrine is reporting often represent the aggregation of small numbers of hours worked by many employees. Often, this was because the contractor's role required contributions from many members of a multi-disciplinary team. Depending on the nature of the services provided and whether the support role could be associated with specific programs, time of these contractors is assigned to programs according to the overall allocation of gas and electric spend by program sector (Residential, Residential Income Eligible, Commercial and Industrial), or allocated to a specific program sector.

A.1.3 Direct Service Providers

Employee numbers reported by Direct Service Providers was a primary input to FTE counts. Peregrine Interviewed the major contractors directly engaged by National Grid to support or deliver Rhode Island programs to get information about type, number, and responsibilities of personnel employed. Some of these contractors provided the same services in 2018 to National Grid customers in multiple states and in some cases to multiple utilities, often using the same team of employees. Peregrine relied on their informal calculations of allocations of time to Rhode Island when formally reported hours from timecards were not available.

Where employer-sourced information on employment was not available, Peregrine relied on program records and statistics for 2018 installations to calculate person-hours, person-days, and ultimately annual full-time equivalent field staff. Peregrine used totals for individual energy efficiency measures installed or, in some cases, total dollar value of categories of projects completed in 2018 to calculate FTEs. Depending on the information available, Peregrine would multiply the average time required (in person-hours or person-days) for each installation by the number of installations and converting the result to FTEs based on an assumed 1,760 work hours per year or 220 workdays per year. These unit-based installation times were secured from representative installation companies that performed this work or from organizations that supervised installation activity. In other cases where the only information available was total project cost, Peregrine would estimate the labor cost component of projects and determine total hours required for installations using average hourly billing rates, again converting those total hours into annual FTEs. Finally, in cases where major employers could provide actual installer hours of work to Peregrine, those actual hours or days of work were used instead of calculated FTEs.

Again, central to these calculation methodologies is an effort to use the same approach year-on-year for individual programs.

A.2 Residential Programs

A.2.1 EnergyWise 1 – 4 Unit Residential Program

For the EnergyWise Residential program, RISE Engineering's program manager provided to Peregrine an overview of how the program functions and any changes from 2016, as well as updated FTE counts of RISE employees in various roles based on payroll tracking. Peregrine then allocated this total number of FTEs to gas and electric programs, using the relative size of National Grid electric and gas budgets as the basis for these allocations.

In 2014, RISE had shared general rules of thumb with Peregrine concerning how weatherization contractor crews and heating contractors perform site work. These typical installation scenarios were borne out by direct interviews with installation companies, as well as by interviews with Community Action Program supervisors with similar responsibilities for low-income residential services. Peregrine has continued to use these rules of thumb for 2018 to estimate numbers of FTE insulation and heating system contractor personnel that installed major energy efficiency measures.

Peregrine assumes it takes a weatherization crew made up of three insulation specialists an average of two days to complete an insulation and air sealing job. National Grid provided counts of numbers of weatherization jobs completed in 2018. Peregrine then used the total numbers of insulation jobs and the average number of man-days required for each installation to calculate a total number of FTEs (again, assuming work 220 days per person per year) providing insulation services in 1-4 unit buildings. FTEs were marked up by 20% to account for a contractor's support and management staff.

For heating system installations, we assume that it takes a two-person team four days on average to remove and replace a hydronic heating system. Peregrine secured counts of high

efficiency heating systems and related equipment installed in 2018 from Hawk Incentives, which processes the incentives paid out for these installations. Since Peregrine had received differentiated counts for replacements furnaces and boilers, Peregrine assigned less installation time to replacement furnaces (due to less piping work) and adjusted time estimates accordingly. Replacement residential gas equipment was allocated to the gas program and any replacement residential oil or propane heating equipment or electric heat pump installations were treated as an expense of the electric program. We multiplied average total hours required for an installation by the total number of items installed. The total number of calculated hours was then divided by 1,760 hours to convert it to FTEs, and the FTEs were marked up by 20% to account for a contractor's support and management staff.

A.2.2 EnergyWise Multifamily Residential Program

As with the EnergyWise 1-4 Unit Residential Program, Peregrine interviewed RISE's program manager and was provided with staffing counts. In addition to general program supervision, responsibilities included technical leadership, auditing, field coordination and inspections, and electrical installation work. Again, RISE was able to convert staff counts to FTEs associated with this particular program. Peregrine relied on installation counts from National Grid to determine numbers of individual measures that had been installed by independent weatherization contractors and heating contractors in these buildings. As was the case for contractors installing measures in 1 to 4 unit buildings, these counts were multiplied by average times for installations in hours or portions or hours, and the resulting total hour counts were divided by 1,760 hours per FTE to arrive at annual FTE counts.

A.2.3 Rhode Island Heating and Cooling Program

The Heating and Cooling Program serves as the umbrella for high efficiency heating, cooling, and water heating. In some respects, it is a distributor and contractor installation program that encourages these market channel participants to promote high efficiency heating and cooling equipment (e.g., condensing gas boilers and furnaces, ductless and ducted heat pumps for air conditioning, high efficiency central air conditioners, smart thermostats) to their respective customers, and passes on National Grid rebates to customers for installation of approved equipment. Installation contractors submitted rebate applications on behalf of their customers to rebate processers Blackhawk and Energy Federation who processed reimbursement checks.

FTE counts for program management were developed from staff counts and allocations provided by the program manager to Peregrine. Total FTEs were then allocated to gas or electric based on the ratio of spending gas and electric programs.

Counts of installation FTEs were generated using installed equipment counts provided by National Grid based on rebates provided. These counts were then used to calculate total hours or days of installation time required and converted to FTEs.

A.2.4 Residential New Construction, Residential Codes and Standards, Residential Home Energy Report Program

For each of these programs, there was no significant incremental labor impact associated with product installed or purchased because the program did not so much affect whether product was installed as it did which product was installed. Peregrine generated FTE counts through interviews with contractors that facilitated these programs and provided support services (e.g., marketing assistance, informational mailings, technical assistance, trade ally training, quality assurance inspections). These businesses provided staffing counts from their accounting records. Total FTEs were then allocated to gas or electric based on the ratio of spending in each residential gas and electric program.

A.2.5 ENERGY STAR® Lighting, ENERGY STAR® Products

Both of these programs were funded solely through the residential electric budget. For both programs, there was no significant incremental labor impact associated with amount of product installed or purchased. Further, retailers' staff engaged at the point-of-sale were not counted as incremental FTEs. Peregrine generated FTE counts through interviews with individual contractors engaged by National Grid to supply services in support of the programs. These businesses provided staffing counts for 2018 from their accounting records. Total FTEs were then allocated to the residential electric spend.

A.3 Low Income Residential Programs

A.3.1 Income Eligible 1-4 Unit Residential

FTE counts for this program for 2018 include program management staff by the program vendor CLEAResult, Community Action Program (CAP) agency staff counts, and calculated labor required to complete installations. CLEAResult staff FTE counts came from direct interviews with CLEAResult's program manager. We determined CAP agency energy staffing for each of the six agencies operating in Rhode Island with the assistance of CLEAResult and then aggregated them to establish the statewide CAP Agency staff count. CLEAResult also provided counts of weatherization and heating system installations completed in 2018. Peregrine used CAP agencies guidance on contractor crew sizes and installation practices to calculate the numbers of FTE installers who performed this work.

A.3.2 Income Eligible Multifamily Residential

Peregrine used the same approach to calculating FTEs for the Income Eligible Multifamily program as for the EnergyWise Multifamily Residential Program since both programs were administered by RISE Engineering and used the same delivery strategy.

A.4 Commercial and Industrial Programs

A.4.1 Small Business Direct Install Program

Peregrine used counts of employees provided by RISE Engineering, the regional program administrator, to generate FTEs for RISE staff involved in program management and measure installations and for their sub-contractors as well. No actual measure counts and calculated FTEs were used to compile job counts attributable to the work of RISE and its subcontractors,

as all workers were accounted for without a piecework analysis. Peregrine also calculated additional FTEs associated with the "customer-directed option" (or "CDO") that allowed customers to use an electrician they had an existing relationship with to install program measures and receive the same incentives as were available through RISE. These numbers were based on information from RISE about numbers of electrical contractors that were active through CDO and the numbers of customers they work with and then cross-tabulated installation time that would be required for actual items installed.

A.4.2 Large Commercial Retrofit Program (Electric)

Installations

As described in the section on energy program delivery, the Large Commercial Retrofit program was the most market-based of all electric programs offered. Customers initiated projects, as did businesses that had products or services they were trying to sell. Installations included prescriptive lighting, motors and drives, compressors, and HVAC control measures. FTEs for installation work was calculated in a number of ways, depending on which information and how much information was available to Peregrine in the data sets supplied by National Grid. For prescriptive Large Commercial Retrofit installations that were part of a specific technology group (e.g., lighting, drives), Peregrine used installed item counts to generate total installation times or total project cost to generate labor cost estimates and converted this information to FTEs. For larger, more complex custom projects, National Grid helped disaggregate total project costs into costs for sub-categories by technology. Installation labor ratios of FTEs associated with non-custom installations of specific equipment and total project costs were applied to total costs of custom measure sub-categories. Once the total dollar value of the project was determined, we could apply assumptions about the ratios of labor cost to material cost for different technologies, calculate the type and number of labor hours this represented, aggregate the total hours, and convert them to FTEs.

Sales and project management

As in past years, Peregrine interviewed the larger Project Expeditors to get counts of sales and project management staff they were employing in 2018 to secure and oversee projects. Similarly, Peregrine estimated the number of sales and project management personnel that were employed by other installation contractors active in Large Commercial Retrofits. We extrapolated the sales and project management staffing identified for Project Expediters to calculate numbers of like staff employed by other installation contractors. This extrapolation used the total dollar value of Large Commercial retrofit projects installed by PEX and by other contractors under to estimate the additional sales and project management staff employed by these other installation contractors.

Engineering support

For engineering support services provided to commercial customers, Peregrine used the recorded payouts for technical assistance services provided in 2018 to calculate workforce FTEs. National Grid provided engineering services to customers through retained contractors, in particular where energy efficiency solutions required technical support to determine what could be done, what should be done, what energy savings would result, and what incentive levels

were appropriate. To calculate the FTEs associated with technical assistance support provided by engineers under contract to National Grid, Peregrine took the total dollars paid out for this work and calculated how many hours of labor it represented at an assumed $120 per hour. Total hours were then converted to FTEs. Finally, for the Smart Grocer and Industrial initiatives, Peregrine interviewed and secured staff counts from CLEAResult and Leidos Engineering.

A.4.3 Upstream Lighting, Upstream HVAC

As in other programs where National Grid and other utilities had engaged a shared contractor to promote and manage like programs in multiple states, Peregrine secured counts of contractor staff from program managers, calculated FTEs, and allocated a portion of them to Rhode Island.

Upstream Lighting-related sales counts were rolled into the Large Commercial Retrofit counts. Peregrine calculated the FTEs required for installation of equipment that required an electrical contractor to wire it by code, taking counts of product, applying per unit labor times, and then calculating the total FTEs for installations. Peregrine did not include any stand-alone lamps sold by Upstream lighting in its FTE calculations because Peregrine could not determine with certainty if they had been installed by the customer or an installation contractor. Upstream HVAC sales counts were reviewed and considered but ultimately not included in total counts. Numbers were relatively small and were in many cases attributed to equipment failures where no incremental labor was needed.

A.4.4 Commercial and Industrial Gas Programs

For Commercial and Industrial Gas programs Peregrine interviewed RISE to secure counts of RISE employees and FTEs. RISE management time attributed to the program was reduced for 2018 because National Grid internalized much of this role leaving RISE to do engineering and Small Business gas installations.

A variety of contractors installed energy efficiency measures under the Large Custom Retrofit program. Due to a lack of specific details about the cost of these projects, Peregrine relied on statistics about incentives levels paid to develop order of magnitude estimates of total project costs for labor and equipment and then conservatively calculated hours of installation labor and total FTEs assuming an average labor rate of $100/hour.

Appendix B. Interview Guides

B.1 Vendor Interview Guide

New Program Interviewee	Program Interviewed Last Year
Your Organization	Your Organization
Tell us a little bit about your company's role in National Grid Energy Efficiency programs.	Has anything changed about your company's role in National Grid Energy Efficiency programs since 2019?
What is your estimate of the number of FTEs who worked on [*insert applicable RI EE program*] in 2020? *Note that the number of FTEs may be less than the number of employees – an FTE is the number of full-time equivalent employees (i.e. 2 part time would make 1 FTE).* [This should be a count of actual FTEs not their estimate without COVID – make sure to clarify]	What is your estimate of the number of FTEs who worked on [*insert applicable RI EE program*] in 2020? *Note that the number of FTEs may be less than the number of employees – an FTE is the number of full-time equivalent employees (i.e. 2 part time would make 1 FTE).* [This should be a count of actual FTEs not their estimate without COVID – make sure to clarify]
What is the breakdown of the FTEs working on the programs in 2020? For example, the number of FTEs working on administrative activities, number of FTEs working as project managers, etc.	What is the breakdown of the FTEs working on the programs in 2020? For example, the number of FTEs working on administrative activities, number of FTEs working as project managers, etc.
Compare 2019 to 2020	Compare 2019 to 2020
How do the number of FTEs for [*insert applicable RI EE program]* compare to 2019? An estimated % change is sufficient.	How do the number of FTEs for [*insert applicable RI EE program]* compare to 2019? An estimated % change is sufficient
If it weren't for COVID, what do you think the number of FTEs would have been in 2020? [Prompt to confirm if increase or decrease in FTEs was as a result of COVID-19, if necessary.]	Based on your prior response of [*insert number of 2020 FTEs from answer to previous question*] FTEs in 2020, an [*insert increase or decrease*] was observed from the number of FTEs in 2019. If it weren't for COVID, what do you think the number of FTEs would have been in 2020? [Prompt to confirm if increase or decrease in FTEs was as a result of COVID-19, if necessary.]
Were subcontractors/installation contractors used in 2020? If yes, what was the number of FTEs of subcontractors/installation contractors?	[If subcontractors/installation contractors used last year] Was there a change in the number of FTEs of subcontractors/installation contractors from 2019? An estimated % change is sufficient.
[If answer to previous question was yes] How do the number of FTEs for subcontractors/installation contractors compare to 2019? An estimated % change is sufficient.	[If subcontractors/installation contractors not used last year] In last year's study you indicated there was no use of subcontractors/installation contractors in 2019. Did this change in 2020? If yes, what was the number of FTEs for subcontractors/installation contractors?

New Program Interviewee	Program Interviewed Last Year
Is the number of projects equal to the number of customers served? [If no] How does the number of customers served through [*insert applicable RI EE program*] in 2020 compare to 2019? An estimated % change is sufficient.	Is the number of projects equal to the number of customers served? [If no] How does the number of customers served through [*insert applicable RI EE program*] in 2020 compare to 2019? An estimated % change is sufficient.
How did COVID impact the [*insert "increase" or "decrease"*] in customers served in 2020 compared to 2019? [Looking for a qualitative answer.]	How did COVID impact the [*insert "increase" or "decrease"*] in customers served in 2020 compared to 2019? [Looking for a qualitative answer.]
Were there any COVID related program changes in 2020 relative to 2019 that affected your workforce? If so, what were those changes and how did they affect your workforce?	Were there any COVID related program changes in 2020 relative to 2019 that affected your workforce? If so, what were those changes and how did they affect your workforce?
Were there any non-COVID related program changes in 2020 relative to 2019 that affected your workforce? If so, what were those changes and how did they affect your workforce?	Were there any non-COVID related program changes in 2020 relative to 2019 that affected your workforce? If so, what were those changes and how did they affect your workforce?
Business Process	Business Process
How does your company acquire EE customers in RI?	Have there been any changes to how your company acquires EE customers in RI since 2019?
How do you attract and retain workforce to support programs?	Have there been any changes to how your company attracts and retains workforce to support programs since 2019?
Does your company provide training to the workforce? If so, how do you provide necessary training to workforce? (Question focuses on identification of needs, training process and frequency)	*[If provided training in 2019]* Have there been any changes to how your company provides training to the workforce since 2019? *[If did not provide training in 2019]* In 2020, did your company provide training to the workforce? If so, how do you provide necessary training to the workforce? (Question focuses on identification of needs, training process and frequency)
Additional Comments	Additional Comments
Are there any changes related to the way National Grid supports your workforce that you would recommend to National Grid? If so, what are those recommendations and what impact do you think they would have?	Are there any changes related to the way National Grid supports your workforce that you would recommend to National Grid? If so, what are those recommendations and what impact do you think they would have?
Does National Grid communicate relevant programmatic, policy, or strategy changes to your company? What, if anything, can the company do to improve its communication?	Does National Grid communicate relevant programmatic, policy, or strategy changes to your company? What, if anything, can the company do to improve its communication?

New Program Interviewee	Program Interviewed Last Year
Any other comments related to these questions?	Any other comments related to these questions?
Interviewee-Specific	Interviewee-Specific
Questions based on National Grid interview observations	

B.2 National Grid Interview Guide

Question 1: Program Changes

What significant program changes have occurred from the 2019 to the 2020 energy efficiency programs in Rhode Island that may have had a significant impact on the jobs associated with these programs?

Prompt if needed: We are looking specifically for programmatic changes that have had significant impacts on jobs beyond those that might be reflected in scaling the number of FTE jobs.

Question 2: COVID

What feedback or information have you received from vendors or program managers regarding the impact of COVID on the employment/workforce environment in Rhode Island in 2020? (For example, maybe the number of FTEs is steady but does it take 50% longer to do insulation work because of all the precautions that they need to take.)

Added prompt: For the vendors you work with or are aware of, are there specific COVID-related impacts that we should be sensitive to as we interview them?

Question 3: Other Feedback

What other feedback or information have you received from vendors or program managers regarding the employment/way of doing work in Rhode Island in 2020, either in general or as a result of programmatic changes?

Question 4: Other Workforce Drivers

Other than what vendors have told you, have you become independently aware of any changes in 2020 in the employment/workforce environment in Rhode Island compared to previous years?

Question 5: Programs in Transition

What is National Grid in RI doing to make up the gap in savings from the transition away from lighting and what impact, if any, has this had on the jobs associated with energy efficiency programs?

What other measure mix changes have the programs experienced in 2020 going into 2021?

Appendix C. Participating Companies

The following list includes contractors and subcontractors performing work directly for National Grid Energy Efficiency programs in 2020 that were counted in the FTE analysis and additional companies who assisted customers to secure equipment rebates, for example through the New Construction, High Efficiency HVAC programs, and upstream lighting. The list also includes the Community Action Program agencies and their subcontractors involved with the delivery of the low-income program, whether under National Grid funding or WAP/LIHEAP/ARRA funding. The list is organized by state, with companies then listed alphabetically. Rhode Island firms are listed first. Of the 1,093 companies, agencies, contractors and sub-contractors listed here, 73% are either headquartered in Rhode Island or have a physical presence in Rhode Island. 19% are Massachusetts-based companies with no physical presence in Rhode Island. 3% of companies are Connecticut firms. The remaining firms have offices in the other New England states or outside of New England. The list is organized with Rhode Island first, then other states in alphabetical order. Within each state, the firms are listed alphabetically.

Table 8-1. List of 2020 Companies, Agencies, Contractors and Sub-Contractors that Worked on the National Grid Energy Efficiency Programs

Vendor	City	State
210 Plumbing	Portsmouth	RI
3GB LLC	Riverside	RI
A & L Plumbing	Westerly	RI
A. Perry Plumbing & Heating	Coventry	RI
A&I Electric	Pawtucket	RI
A Santurri Electric	East Greenwich	RI
A E Costa Electrical Contractor LLC	Warwick	RI
A/C Burner Service	East Providence	RI
A-1 Plumbing & Drain Cleaning	Pawtucket	RI
Accu Electric	Providence	RI
Acorn Oil	Pawtucket	RI
ACR Construction & Management Corp	North Providence	RI
Cardin, Adam	Burrillville	RI
ADERO	Cranston	RI
Adler Bros. Development	Smithfield	RI
Advance Electrical Corporation	Providence	RI
Advanced Comfort Systems Inc.	North Smithfield	RI
Advanced Heating & Cooling	Greenville	RI
Aero Mechanical Inc.	Roxbury Crossing	RI
Affordable Building & Weatherization, Inc.	Cumberland	RI
Affordable Heating & Air Conditioning Services	North Providence	RI
Affordable Insulation, Inc.	Providence	RI
Air Flow Inc.	Coventry	RI
Air Metalworks Ltd.	Carolina	RI

Vendor	City	State
Air Quality LLC	Cranston	RI
Air Synergy LLC	Providence	RI
Air Tech Pro HVAC	Cranston	RI
Air Temp	Riverside	RI
Airhart Electric Inc.	Coventry	RI
Larocci, Al	Warwick	RI
Al Swajian & Son	Cranston	RI
Ala & Sons Construction	Warwick	RI
Alan Menard Plumbing LLC	Pawtucket	RI
Alan Paul Electric	Warwick	RI
All Electrical Solutions	Providence	RI
All Phase Heating & Cooling	Coventry	RI
All Star Insulation	Providence	RI
Allen Engineering	Warwick	RI
Alliance HVAC	Cumberland	RI
Alpha & Omega Homes	Cumberland	RI
Alpha Mechanical	East Providence	RI
Al's Electric	North Providence	RI
AM Electric LLC	Warwick	RI
Amaral, Paul	Tiverton	RI
Amazon	Barrington	RI
American Heating,Plumbing,& Sprinkler,Inc.	North Providence	RI
American Home Heating & Air Conditioning	Cranston	RI
American Pride Plumbing & Heating LLC	Warwick	RI
Anchor Insulation Inc.	Pawtucket	RI
Anchor Plumbing & Heating	Providence	RI
Anderson Energy Solutions LLC	Charlestown	RI
Andrade & Co LLC	North Providence	RI
Andy's Overhead Electric LLC	Exeter	RI
Anibal J. Cante	Central Falls	RI
Anthony Januario Heating	Bristol	RI
Anything Plumbing & Heating Service	Harrisville	RI
Apple Valley Alarms	North Scituate	RI
Apuzzo Plumbing & Heating	North Scituate	RI
Aquidneck Services LLC	Taunton	RI
AR Heating & Cooling Inc.	Central Falls	RI
Arden Engineering Constructors, LLC	Pawtucket	RI
Ardente Supply Co. Inc.	Providence	RI
Armor Insulation	Pawtucket	RI
Arther Lettieri	Providence	RI

Vendor	City	State
Arthur W. Adler	Bristol	RI
Aten Energy	Providence	RI
Atlantic Plumbing & Heating Supply	Coventry	RI
Atlantic Power Services Inc.	Pawtucket	RI
ATLANTIS CoMFORT SYSTEMS	West Warwick	RI
Atlas Insulation	North Scituate	RI
ATMS Electrical Services	East Providence	RI
Audet, E.W. & Sons Inc.	Providence	RI
Audet, Robert F. Inc.	East Greenwich	RI
Aussant Electric	Cumberland	RI
Autiello Plumbing & Heating	Cranston	RI
Automatic Temperature Controls	Cranston	RI
Automatic Heating Equipment	Providence	RI
AZ Corporation	Hopkinton	RI
B & B Consumers Natural Gas Service & Air Conditioning	Woonsocket	RI
B & J Matzner	Warwick	RI
B & K Electric, LLC	Warwick	RI
B & M Plumbing	Warwick	RI
B Martel Plumbing & Heating	Central Falls	RI
B Z Electric	West Warwick	RI
B&D Boiler Removal	Pawtucket	RI
B&W Building Maintenance Electrical Contractors	Providence	RI
B. LaChapelle Home Improvements LLC	Lincoln	RI
Bard Plumbing & Heating	Warwick	RI
Barlow Heating LLC	Warwick	RI
Barrett Plumbing & Heating Inc.	West Greenwich	RI
Barrington Plumbing & Heating Inc.	Barrington	RI
Baum Energy	Warren	RI
Bayside Electric Company	Warwick	RI
Beauchemin Design	North Smithfield	RI
Belcher Electric LLC	Warwick	RI
Beneficial Energy	Pawtucket	RI
Benjamin Jenkins Dba	Middletown	RI
Berard Heating & HVAC	Warwick	RI
Bertrand Plumbing Inc.	Pascoag	RI
Bileau HVAC Inc.	Woonsocket	RI
Bill The Plumber	Smithfield	RI
Bill's Direct Plumbing & Heating	Bristol	RI
Bill's Heating Service Inc.	Warwick	RI
Bisono Construction	Providence	RI

Vendor	City	State
Blackstone Valley Community Action	Pawtucket	RI
Blanco, Owen	Warwick	RI
BLH Realty	Warwick	RI
BMB Services LLC	Cranston	RI
Bobby Hopkins	Exeter	RI
Bodell Plumbing & Heating	South Kingstown	RI
Boss Heating	Westerly	RI
Boucher HVAC/R Inc	Wakefield	RI
Brandon Schiano Plumbing & Heating	Cranston	RI
Braswell's Plumbing & Heating	North Kingstown	RI
Brian Mellor	Warren	RI
Brien Godin	Cumberland	RI
Brittain Electric Inc.	Jamestown	RI
Brock's Electric	Johnston	RI
Broway Electric, LLC	Cranston	RI
Bruno & Son Electric Inc.	North Providence	RI
Buckley Heating & Cooling	Middletown	RI
Burbank's Plumbing & Heating Inc.	North Kingstown	RI
Butler & Sons Plumbing & Heating	Cranston	RI
C & L Energy Corp	Cranston	RI
C. Caswell Plumbing	Jamestown	RI
C.J. Nemes Inc. Plumbing & Heating	Woonsocket	RI
Cal Supply Company, Inc.	Cranston	RI
Calson Corporation	Johnston	RI
Calyx Retrofit	Lincoln	RI
CAM HVAC & Construction Inc.	Smithfield	RI
CARJON Air Conditioning & Heating Inc.	Smithfield	RI
Carlino Electric	Coventry	RI
Casey's Oil & Propane	Portsmouth	RI
Casperson Construction	Johnston	RI
Cassana HVAC LLC	Johnston	RI
Cavaco Brothers Plumbing & Heating	East Providence	RI
CD Heating, Inc.	Cranston	RI
Century Heating	Smithfield	RI
Century Sheet Metal, Inc.	Riverside	RI
CFC Electrical Contracting Inc.	Providence	RI
Charette Plumbing LLC	Richmond	RI
Charland Enterprises	Pawtucket	RI
Charles Doherty & Steve Girard	Warwick	RI
Charter Plumbing & Heating Co	Warren	RI

Vendor	City	State
Chilabato, Peter	Portsmouth	RI
Chris Cardillo Electrician	Providence	RI
Chris Electric, Ltd.	Newport	RI
Cinco Plumbing & Heating	Coventry	RI
CJ's Plumbing & Heating Specialists	Smithfield	RI
CK Plumbing & Heating	Pawtucket	RI
Clearesult	Providence	RI
Clermont Mechanical Plumbing	Glendale	RI
Cleverly Plumbing LLC	Greene	RI
CMA Heating & AIR	East Providence	RI
CMAGS HVAC	Warwick	RI
Coastal HVAC	Wakefield	RI
Cohen Heating Supply Inc.	Providence	RI
Collard Enterprises	Coventry	RI
Comfort Systems	West Kingston	RI
Community Action Partnership of Providence	Providence	RI
Competitive Chimney Sweep Inc.	Woonsocket	RI
Complete Construction Inc.	Providence	RI
Comprehensive Community Action	Cranston	RI
Condon, James	Tiverton	RI
Connolly and Sons Heating Services	Harmony	RI
Consolidated Maintenance	Johnston	RI
Consumers Propane, Bousquet Oil	Woonsocket	RI
Continental Engineering Inc.	Johnston	RI
Control Systems	Cranston	RI
Cordeiro, Nathan	Portsmouth	RI
Costa, Dave	East Providence	RI
Cross Insulation	Cumberland	RI
Cruz Remodeling & Construction Co	Providence	RI
Crystal Plumbing & Heating	Providence	RI
CS Plumbing & Heating	Warwick	RI
CSV Mechanical	South Kingstown	RI
Custom Comfort	Cumberland	RI
Custom Plumbing & Heating Co	Newport	RI
Cutler H. Besser & Sons	Scituate	RI
CW Cummings Plumbing Co.	Coventry	RI
D & D Electric Company	East Greenwich	RI
D & E Electric, Inc.	Warwick	RI
Dave Fortier (D & Z Electric)	Woonsocket	RI
D Gomes Electric LLC	Pawtucket	RI

Vendor	City	State
D P Electric	Cumberland	RI
D&D Electric	Cranston	RI
D&S Construction Co	Lincoln	RI
D&V Mechanical Inc.	Westerly	RI
D.F.S. Plumbing Services	Cranston	RI
D.S. Plumbing	Quincy	RI
Danico LLC	North Providence	RI
Dante Gonzales	Providence	RI
Dauphinais Electrical Services LLC	Woonsocket	RI
David A. Ciancio, Jr., Inc.	Scituate	RI
David R. Gince Electrician	Woonsocket	RI
David Parrillo Plumbing, Heating & Son LLC	Hope	RI
David Phillips Plumbing & Heating	Riverside	RI
David Seddon Electrician	Rumford	RI
David St. Angelo	Barrington	RI
Dayco Electric	Warwick	RI
DCI Construction	Cumberland	RI
Delmonico Enterprises, Inc.	Cranston	RI
Delta Electro Power Inc.	Cranston	RI
Delta Mechanical Contractors	Pawtucket	RI
Dennis Decorpo Electric	Scituate	RI
Dennis Pratt Plumbing & Heating	Harrisville	RI
Derek DeCosta	Riverside	RI
Derek Germain	Cumberland	RI
Desmarais Plumbing & Heating Inc.	Johnston	RI
Dessaint Electric Co.	Warwick	RI
Devivo Plumbing & Heating	North Smithfield	RI
Dimery, Robert W. Dba	Barrington	RI
Diorio, Joseph	Pawtucket	RI
DIROCCO Plumbing ServiceS LLC	North Providence	RI
Divona Enterpries	Cranston	RI
DJL Electric	Warren	RI
Dominic Mazza Construction	Pawtucket	RI
Done Right	North Providence	RI
Donovan & Sons	Middletown	RI
DP'S Plumbing & Heating	Scituate	RI
Driver's Plumbing & Mechanical	Providence	RI
DSC Heating & Air Conditioning	North Kingstown	RI
DSL & Sons Heating & Cooling Inc.	Bradford	RI
Dual Voltage Electric	Johnston	RI

Vendor	City	State
Dudek Oil	Warren	RI
Dumais Plumbing & Remodeling Inc.	Slatersville	RI
Dupuis Oil Co.	Pawtucket	RI
Duran Electric	Lincoln	RI
Durante Electric	Lincoln	RI
DWI Electrical Group	Johnston	RI
Dynamic Air Systems Inc.	East Providence	RI
E. A. Marcoux & Son Inc.	Woonsocket	RI
Eagle Design Corp	Middletown	RI
East Coast Electric	South Kingstown	RI
Eastbay Community Action	Riverside	RI
Eastern Plumbing & Heating	Providence	RI
Ecologic Spray Foam Insulation Inc.	Tiverton	RI
Econ Electric Contractors	Bristol	RI
Economy Air Inc.	Exeter	RI
Ed Sylvia Plumbing	Narragansett	RI
Eddys Weatherization	Providence	RI
Edward Martino	Johnston	RI
Edward Silvia	Middletown	RI
Eirich Electric Inc.	Portsmouth	RI
Electrical Concepts Inc	East Greenwich	RI
Electrical Construction Specialists LLC	Middletown	RI
Electrical Wholesaler Inc.	Cranston	RI
Electro-Tec Systems Inc	Lincoln	RI
Elite Heating & Cooling LLC	Pawtucket	RI
Emerald Services	Foster	RI
Emergency Response Service	Providence	RI
Energy Conservation Inc.	South Kingstown	RI
Energy Efficient Exteriors, Inc.	Pawtucket	RI
Energy Electric, Inc.	Woonsocket	RI
Energy Geeks	North Smithfield	RI
Energy One	West Warwick	RI
Energy Source LLC	Providence	RI
EP Electric	East Providence	RI
Erban Plumbing	Warwick	RI
Eric R. Krause Electrician	Cranston	RI
Eric Tyler Electrician	Charlestown	RI
Esmond Electric	Smithfield	RI
Eurotech Climate Systems LLC	Pawtucket	RI
Evergreen Plumbing & Heating	Warwick	RI

Vendor	City	State
F & S Electric Inc.	Bristol	RI
Falcon Electric	Pawtucket	RI
Falcone, Arthur P	Hope Valley	RI
Feather HVAC	Cumberland	RI
Feula Plumbing & Heating	Johnston	RI
Figliozzi Plumbing & Heating	Peace Dale	RI
Fiore & Sons LLC	Warwick	RI
Five Star Mechanical	Richmond	RI
Fleet Plumbing & Heating Inc.	North Scituate	RI
Flint Audio Video	Middletown	RI
Flou HVAC	Charlestown	RI
FM Bodington Plumbing & Heating Inc.	Little Compton	RI
Fox & Delomba Heating, Air Conditioning & Plumbing	Riverside	RI
Francis Heating & Hydronics	East Providence	RI
Frank Lombardo & Sons	Providence	RI
Fred Manupelli Plumbing & Heating	Johnston	RI
Frontier Mechanical	Providence	RI
Furtado Lighting & Design LLC	Bristol	RI
G. Gagnon Electric & Sons Ltd	Cumberland	RI
G.M. Perron & Son Plumbing & Heating	North Smithfield	RI
Gallo Electric	West Greenwich	RI
Gambit Electric	Johnston	RI
Gary Fernandes Electrician	Woonsocket	RI
Gary Ficca Electrician	North Smithfield	RI
Gas Doctor	Providence	RI
Gatta Electric	Cranston	RI
Gerald M Lepore Jr.	Cranston	RI
Giorno Plumbing & Heating	Cranston	RI
GKT Refrigeration	Pawtucket	RI
Glenn Smith Construction LLC	Middletown	RI
Globex Industries Inc.	Narragansett	RI
Gomes Heating & Cooling	North Kingston	RI
Gordon Building & Excavating Inc.	Hope Valley	RI
Graham Builders	Smithfield	RI
Gravel Electric Inc.	Harrisville	RI
GreanSeal Insulation	North Kingston	RI
Greenwich Insulation	West Greenwich	RI
Greg Blanchette	North Smithfield	RI
Greg Brown	Smithfield	RI
Griff Electric LLC	Portsmouth	RI

Vendor	City	State
Gross, Carl	Providence	RI
Guarino Power Systems LLC	Smithfield	RI
Guy Clemont Plumbing & Heating	Cranston	RI
H&R Electric Contractors Inc.	Greenville	RI
Harris Plumbing & Heating Inc.	Narragansett	RI
Hawkes Plumbing & Heating Co. Inc.	Fiskdale	RI
Heavenly Homes	Cranston	RI
Henderson Electric	Pawtucket	RI
Henderson, Paul	Warwick	RI
Hilario A. Quezada Electrician	Providence	RI
Hill Electrical Services	Pascoag	RI
Hodges Electric	Scituate	RI
Holland Electric	Peace Dale	RI
Homan Associates	Warwick	RI
Home Depot	Smithfield	RI
Houle Plumbing & Heating	Coventry	RI
Howards Heating	North Kingstown	RI
HSP Construction LLC	Coventry	RI
Hughes Inc.	North Kingstown	RI
Hutchins Electric	East Greenwich	RI
HVAC Excellence	Central Falls	RI
HVAC Inc.	Cumberland	RI
Hynson Electrical Construction Inc	Bristol	RI
Iasimone Plumbing & Heating	North Providence	RI
Industrial Refrigeration Corporation	Cranston	RI
Installed Measures	Coventry	RI
IPA Electric LLC	Cranston	RI
IRB Solutions Inc.	Greenville	RI
Iron Pipes Plumbing LLC	Harrisville	RI
Iroquoian Plumbing & Heating	Providence	RI
Island Solar Plumbing and Heating	Jamestown	RI
It's Shocking Electric Corp.	Cranston	RI
Izzo & Sons Electric	Warwick	RI
J & A Electric	Providence	RI
J & K Supplemental Plumbing Inc.	East Greenwich	RI
J Colacone Plumbing	North Kingston	RI
J Joyce Plumbing & Heating	Warwick	RI
J Zarrella Plumbing & Heating	Cranston	RI
J&M Plumbing	Coventry	RI
J. Emilio Reyes	Pawtucket	RI

Vendor	City	State
J.D. Mello Plumbing & Heating Inc	Westford	RI
Jack's Electric	Jamestown	RI
Jacobson Energy Researc	Providence	RI
James J. O'Rourke, Inc.	Warwick	RI
Jan Co	Cranston	RI
Jaquez General Contractor	Providence	RI
Jason Truppi Plumbing and Heating	North Providence	RI
JB Cote Construction	Cumberland	RI
JBK Plumbing	Warwick	RI
JC Electric Inc.	Wakefield	RI
JD Power Electric LLC	North Smithfield	RI
JED Electric Inc.	Greene	RI
Jerry's Paint & Hardware	Narragansett	RI
JG Home Remodeling	Riverside	RI
Jim Silvia	Warwick	RI
Jim Steitz Plumbing & Heating	Greene	RI
JKL Engineering Co. Inc	Providence	RI
JL Electric Inc.	Middletown	RI
JLJ Enterprises Dba Jenkins Heating S	Smithfield	RI
JMAC Plumbing and Heating Inc	Warwick	RI
JMC Construction	Providence	RI
Jo Da Plumma	Warwick	RI
Jo Plumbing	Warwick	RI
Joe Falconi Jr.	Westerly	RI
Joe Vigneault Electrician	Riverside	RI
Joe's Plumbing & Heating	Warwick	RI
John Ekdahl	Chepachet	RI
John Fletcher Heating	Ashaway	RI
John Giguere Electrician Dba	North Smithfield	RI
John Nicholson Mechanical Contractor	North Scituate	RI
John Schweglewis Plumbing Solutions LLC	North Smithfield	RI
Johnny Mack Electric	Narragansett	RI
Johnny's Home Solutions LLC	Central Falls	RI
Johnny's Oil & Heating	Providence	RI
Johnson & Johnson Plumbing	Narragansett	RI
Johnston Electric Inc.	North Scituate	RI
Johnstone Supply	Providence	RI
Jonathan Svitil	Lincoln	RI
Jordan Osedacz	Warwick	RI
Jose Toledo	Coventry	RI

Vendor	City	State
Joseph C. Grimm Plumbing Inc	Narragansett	RI
Joseph Janton	West Warwick	RI
Joseph Joyce	Westminster	RI
Joseph M Arriaga	Barrington	RI
Joseph McDermott Pipeworks	Bristol	RI
Joseph Soave	North Providence	RI
Josh's Plumbing Services	Foster	RI
JP Island Plumbing	Middletown	RI
Juan Villanueva	Cumberland	RI
Julio Ortiz	Johnston	RI
Just Heat	Portsmouth	RI
K Electric	Warwick	RI
K&B Mechanical LLC	North Providence	RI
Kafin Oil Company	Woonsocket	RI
Kazounis Plumbing and Heating	Hope Valley	RI
KE Plumbing LLC	Burriville	RI
Keith Weindel (Amped Electric)	Coventry	RI
Kelco Electric Inc.	Johnston	RI
Kelley, James	Scituate	RI
Kennedy's Home Improvement	Lincoln	RI
Kenny Pierce	Ashaway	RI
Ken's Heating	Providence	RI
Kent County Electrical Service	Warwick	RI
Kevin Messier Electrical	Cumberland	RI
Kirk Rerick	Hope	RI
Kirkbrae Electric	Lincoln	RI
Kirwin Brothers Contracting	Newport	RI
KME Electric	Woonsocket	RI
KMJ Electric & Construction	North Providence	RI
Knight Plumbing & Heating	Cranston	RI
Koolco Inc.	Wakefield	RI
KP Sullivan Heating LLC	Cumberland	RI
Kwik Plumbing & Heating	Johnston	RI
L&B Remodeling	North Providence	RI
L & F Plumbing LLC	Cranston	RI
Lamar & Sons	Greenville	RI
Lamplighter, In	Little Compton	RI
Lancellotta Plumbing & Drain Cleaning	North Scituate	RI
Landy, Ross	Portsmouth	RI
Leak Free Lifestyles	Coventry	RI

Vendor	City	State
Lee'S Plumbing & Heating	Providence	RI
Leidos Engineering	Newport	RI
Lemay, Donald	Bristol	RI
Leveille Electric	Smithfield	RI
Liddell Brothers Inc.	Woonsocket	RI
Lifespan Corp.	Providence	RI
Lighten Up Electric, LLC	Cranston	RI
Lincoln Electric LLC	Warwick	RI
Lincoln Sheet Metal	Central Falls	RI
LJ Giorgi Plumbing & Heating	North Providence	RI
Lombardi Electric Co	Warren	RI
Lowe's Home Improvement	Warwick	RI
Lubera Plumbing	Foster	RI
Luke Beaudreault Plumbing & Heating N	Harrisville	RI
Luso Plumbing & Heating Inc.	Cumberland	RI
M & Correia's Plumbing & Heating Supply	Warren	RI
M D'Andrea Electric LLC	Portsmouth	RI
M P Samsky Corp.	North Smithfield	RI
M & M Electric	Providence	RI
M. Deltufo Plumbing & Heating	East Greenwich	RI
Macchio Construction	Johnston	RI
Madden Electric	Little Compton	RI
Mador Electric, LLC	Providence	RI
Maggiacomo Plumbing Inc.	Cranston	RI
Magnetic Electric Inc	Warwick	RI
Main Street Plumbing LLC	Pawtucket	RI
Majestic Mechanical	Hope	RI
Malone Plumbing & Heating Inc.	Cranston	RI
Maloney's OIL Company	Pawtucket	RI
Mandarini Plumbing and Heating	Cranston	RI
Manfredo Electric	Warwick	RI
Manning Plumbing Company	Warwick	RI
Mansfield Heating Inc.	East Greenwich	RI
Marcel MS LLC	Pawtucket	RI
Marcelo's Home Improvements	Warwick	RI
Marchetti, Matthew A.	Cranston	RI
Marinelli & Sons Electric	West Kingston	RI
Mario's Appliances	Woonsocket	RI
Marisa Desautel	Providence	RI
Mark Southworth Maintenance	Johnston	RI

Vendor	City	State
Maron Construction Co. Inc.	Providence	RI
Martel Plumbing & Heating	Lincoln	RI
Mastrocinque & Sons Plumbing & Heating	Portsmouth	RI
Matt Plumbing	Warwick	RI
Matthew Fitts Electrical	Greeneville	RI
McCormick Electrical	North Kingstown	RI
MCJ Services LLC	Cranston	RI
McKee Bros Oil Corp	Cumberland	RI
Mechanical HVAC	Peace Dale	RI
Mercury Tec Inc.	East Providence	RI
Messier, Jacob	Warwick	RI
Metro Electric	Woonsocket	RI
MH Electric	Cranston	RI
Michael Babbitt	Lincoln	RI
Michael Dias	Smithfield	RI
Michael Faria	Cranston	RI
Michael Freitas Plumbing & Heating	Pascoag	RI
Michael Kennedy	Bradford	RI
Michael LaFleur Electrician	Smithfield	RI
Michael Lundy	Tiverton	RI
Michael Marchetti Electrician	Cranston	RI
Micheletti Oil	Johnston	RI
Midstate Heating & Cooling	Hope Valley	RI
Mike Simone Plumbing & Heating	Cranston	RI
Miller Electric Corp.	West Warwick	RI
Miller Mechanical Inc.	Wayland	RI
MJ Bouchard Heating & Air Conditioning	Greenville	RI
MJ Electric and Refrigeration	Central Falls	RI
MJ Heating & Air Conditioning	Tiverton	RI
MJF Plumbing & Heating	Bristol	RI
Mo HVAC Service	Warwick	RI
Modern Mechancial LLC	Woonsocket	RI
Moises Chevalier Electrician	Cranston	RI
MoonWorks	Woonsocket	RI
Morra Electric Inc.	Johnston	RI
MPG Mechanical	Charlestown	RI
Mr. HVAC LLC	Warwick	RI
Mr. Plumber LLC	East Providence	RI
Mr. Rooter	Warwick	RI
MSC Mechanical	Warwick	RI

Vendor	City	State
MTS Mechanical	East Providence	RI
MussulliElectric	Harrisville	RI
MUTUAL Engineering	Warwick	RI
North Atlantic Heating, Inc	Coventry	RI
N Berardinelli & Sons	Warwick	RI
National Refrigeration Inc.	Warwick	RI
National Service Company	Warwick	RI
NDL Designs	Portsmouth	RI
Near Shore Builders Inc.	East Greenwich	RI
NEC Home ServiceS LLC	Bristol	RI
Nestor Padilla After Hours Plumbing	Providence	RI
New England Boiler Works LLC	Coventry	RI
New England Insulation	Woonsocket	RI
Newbury Insulation	Woonsocket	RI
Newport Electric	Portsmouth	RI
Nexgen Mechanical Inc.	Cranston	RI
Nexus Electric	North Providence	RI
NGB Electric	Smithfield	RI
Nicolas Bermudez	Pawtucket	RI
Nite Oil	Tiverton	RI
Nivaldo Rocha	Pawtucket	RI
Nolin Electric	North Scituate	RI
Norbury Construction Company Inc.	Portsmouth	RI
Northeast Temperature Control	Westerly	RI
Northern Electric	Harrisville	RI
Northern Energy Services Inc.	Providence	RI
NS Electric LLC	Exeter	RI
Oal Service Co.	Central Falls	RI
Ocean State Air Solutions	Portsmouth	RI
Ocean State Mechanical Inc.	Fiskeville	RI
Ocean State Service Group	Central Falls	RI
Oceanline Combustion	Pawtucket	RI
Old Tyme Electric, Inc.	Pawtucket	RI
Omni Electric	Wakefield	RI
On The Side HVAC	Cranston	RI
O'Neil Electric Company	Warwick	RI
Oscar Lopez	Cranston	RI
P & S Electric Inc.	Cranston	RI
Papa's Plumbing	Johnston	RI
Parisi Electric	Warwick	RI

Vendor	City	State
Parrella Electric	Providence	RI
Patrick Butler	Providence	RI
Paul Manfredo Electric	Warwick	RI
Paul Musco	Cranston	RI
Paul Partridge Plumbing & Heating	East Providence	RI
Paul Scotto Electrical	Portsmouth	RI
PAV Electric	Wakefield	RI
Pawtucket Power Association	Pawtucket	RI
Pecchia Plumbing & Heating	Warwick	RI
Pellegrino Plumbing	Westerly	RI
Pelletier & Son Plumbing	North Kingstown	RI
Percivalle Electric Inc	Warwick	RI
Perez Construction	Providence	RI
Perez Plumbing Heating & Air Conditiong	Cranston	RI
Perfect Touch Electrical Contractors Corp.	Cranston	RI
Performance Electric	Coventry	RI
Peter Bibby Ponagansett LLC	Providence	RI
Peter Shadoian Electrician	North Providence	RI
Pete's Heat	Foster	RI
Petrarca Plumbing & Heating	Warwick	RI
Petro Heating & AC Services	Warwick	RI
Petro Home Services	East Greenwich	RI
Petronelli Plumbing & Heating	Johnston	RI
Pezzullo & Sons Electric Inc.	East Providence	RI
Phalanx Engineering Inc.	Warwick	RI
Phillip J Bolster	Wakefield	RI
Phillip J. Forcier Electric	Cumberland	RI
Phillips Plumbing & Mechanical Inc.	Cranston	RI
Phil's Heating & AC	Westerly	RI
Pickles Plumbing and Heating LLC	Mapleville	RI
Pinnacle Plumbing & Heating	Greenville	RI
Platinum Plumbing Inc.	Pawtucket	RI
Plumb Pro LLC	Cranston	RI
Plumbing & Heating Solutions LLC	East Greenwich	RI
Plumbing With Merritt	Warwick	RI
Polaris Plumbing & Heating	Johnston	RI
Polisena Construction	Smithfield	RI
Positive Energy Electric	Saunderstown	RI
Post Theul Electrician	Providence	RI
Potvin Electric Inc.	North Providence	RI

Vendor	City	State
Power by Design Electrical Contracting LLC	Richmond	RI
Preferred Heat Inc.	Providence	RI
Premair HVAC	Warwick	RI
Presto Plumber LLC	Westerly	RI
Pride HVAC Services	Portsmouth	RI
Prince Noah HVAC	Central Falls	RI
Priority Plumbing & Heating Inc.	Warwick	RI
PRO-MAC Inc.	Woonsocket	RI
Property Ventures	Smithfield	RI
ProPlumbing of RI	West Warwick	RI
Prout Mechanical	Warwick	RI
Providence Mechanical Services LLC	Smithfield	RI
Providence Plumbing & Heating	Warwick	RI
PSE Agency	Providence	RI
R & M Electric Inc.	Coventry	RI
R.B. Queern & Co Inc.	Portsmouth	RI
R.C Plumbing & Heating	Smithfield	RI
R.E. Coogan Heating Inc.	Warwick	RI
R.E.M. Electric, Inc.	North Kingstown	RI
R.E.M. Mechanical LLC	North Kingstown	RI
R.F. Heating & Cooling Inc.	Exeter	RI
R.K. Plourd & Son Construction LLC	Warwick	RI
Rafelito Heating Services	Providence	RI
Ralph Desimone	Pawtucket	RI
Ralph Geiselman	Pawtucket	RI
Rama Electric	Wakefield	RI
Ray Ciampanelli Plumbing & Heating Co.	Peace Dale	RI
Raymond Degnan	North Providence	RI
Raymond J Reinsant Plumbing & Heating	Lincoln	RI
RAZ Heating & Plumbing Services	Foster	RI
Reddy Piping Concepts	Cranston	RI
Regan Heating & Air Conditioning	Providence	RI
Regent Electric Co. Inc	Coventry	RI
Reichert & Sons Fuel Oil Inc.	Chepachet	RI
Reilly Electrical Contractor Inc.	Cranston	RI
Relevant Discover-e	Providence	RI
Reliant Electric	Cranston	RI
Remy Plumbing & Heating	Warren	RI
Renaissance Sheet Metal LLC	Cranston	RI
Repair Services	Providence	RI

Vendor	City	State
Restivos Heating & Air	Johnston	RI
RF Audet Inc.	East Greenwich	RI
RF Plumbing & Heating	Johnston	RI
Richard Gayer Electric	Bristol	RI
Rholen Central	Bristol	RI
RI Electrical Contractors (Carlos M. Delgado)	Providence	RI
RI Insulation	Hope	RI
RI Pipe Guys	Warwick	RI
RI Sheet Metal LLC	East Providence	RI
Riasbo	Providence	RI
Richard Ditusa	Johnston	RI
Richburns Plumbing	Portsmouth	RI
Rightway Electric, Inc.	Providence	RI
RISE Engineering	Cranston	RI
Ritacco Electric LLC	Westerly	RI
RMD Plumbing	Newport	RI
RMS Ruggieri & Sons Mechanical LLC	Wyoming	RI
Robert Cordeiro	North Providence	RI
Robert Dionne	Smithfield	RI
Roberts Electric	Pawtucket	RI
Rodriguez Plumbing & Heating	Provincetown	RI
Rolland M Belanger Plumbing & Heating	Pascoag	RI
Rooter Man Plumbers	Johnston	RI
Rossi Electric Company	Cranston	RI
Round One Electric	Harrisville	RI
Rowlett & Son's HVAC	Cranston	RI
RPM Electrical Services	Providence	RI
RSC Plumbing LLC	Exeter	RI
RSM Electric	North Providence	RI
Rudy Almada Electrician	East Providence	RI
Rumford Mechanical	Rumford	RI
Rusco Enterprises Inc./TA	Warwick	RI
Russ Lembo Electrician	Johnston	RI
Ryan Bartlett	Coventry	RI
S & K Electric Inc.	Charlestown	RI
S & S Electric	Chepachet	RI
S Gomes	East Providence	RI
S.B. Carbone	Cranston	RI
Salder Services	Rumford	RI
Sakonnet Electric	Bristol	RI

Vendor	City	State
Sakonnet Plumbing & Heating	Little Compton	RI
Sal Manzi & Son Plumbing & Heating Inc	Cranston	RI
Salks Hardware & Marine Inc.	North Kingstown	RI
Sam Bliven Jr. Plumbing & Heating Inc.	Westerly	RI
Sam Ponte Heating & Air Conditioning LLC	Hope Valley	RI
Sanches Plumbing & Heating	Cumberland	RI
Sanford Electric	Bristol	RI
Santoro Electric	Warwick	RI
Santoro Oil	Providence	RI
Sargent Plumbing Inc.	West Kingston	RI
SAS Brothers Inc.	Johnston	RI
Sauvageau, Roy	South Kingstown	RI
Save The Bay	Narragansett	RI
Scotto Electric	Portsmouth	RI
Seddon Electric	Rumford	RI
Sensible Air Heating AC	Riverside	RI
Sensible Heating & Air Conditioning LLC	Hope Valley	RI
Shamrock Electric	Middletown	RI
Shawn Duguay	Johnston	RI
Shearman Oil	Tiverton	RI
Shepard Services	Cumberland	RI
Sheridan Electric Inc.	Warwick	RI
Sherman Plumbing	Rumford	RI
Sine Plumbing & Heating	East Providence	RI
Size Construction	Cranston	RI
Small's Plumbing Inc	Woonsocket	RI
Smithco Oil Service	Wakefield	RI
Smithfield Plumbing & Heating Supply	Greenville	RI
SMP Electric, LLC	West Warwick	RI
SMS Oil Burner Service	Jamestown	RI
Soares, William	Bristol	RI
Sonner Plumbing, Heating & Construction Inc.	Cranston	RI
Sosa & Son Corporation A/C Heating, Plumbing Refrigeration	Woonsocket	RI
South County Gas Service	Narragansett	RI
Spencer's Plumbing	East Greenwich	RI
SPL Electrical Corporation	North Smithfield	RI
Stable, HVAC Mechanical Contractor	Pawtucket	RI
StandishHeating & AC	Coventry	RI
Stanton Electric, Inc	Cumberland	RI
Statewide Insulation	North Smithfield	RI

Vendor	City	State
Statewide Plumbing & Heating Co., Inc	Cranston	RI
Stedman & Kazounis	Charlestown	RI
Stem Electrical	Warwick	RI
Stephen Andrea Fire & Electric, LLC	Coventry	RI
Stephen Larochelle	Cumberland	RI
Sterling Mechanical Services LLC	Greene	RI
Steven Dubois Inc.	Bradford	RI
Stonylane Electric	Exeter	RI
Sugrue & Associates	Smithfield	RI
Summit Electrical Contractors Inc	Lincoln	RI
Summitt Heating Service Inc.	Coventry	RI
Sunshine Fuels & Energy Services	Bristol	RI
Superior Comfort Inc.	Bristol	RI
Superior Electric	Warwick	RI
Superior Fire & Electrical Services	North Providence	RI
Superior Insulation LLC	Smithfield	RI
Superior LED Lighting LLC	Warwick	RI
Superior Plumbing & Heating	Cranston	RI
Supply New England	Peace Dale	RI
Supreme Duct Systems	Lincoln	RI
Sustainable Energy Solutions	Providence	RI
SW & Sons Plumbing & Heating LLC	North Providence	RI
T. Cabral Rooter & Plumbing Repair	Cranston	RI
T. Gomes Heating & Cooling	Warwick	RI
T.A. Gardiner Plumbing and Heating	Bristol	RI
Tebano Electric	Bristol	RI
Tebo Electric Inc	Woonsocket	RI
Ted Buhre Building Firm LLC	West Greenwich	RI
TempTec Mechanical	Providence	RI
TH Malloy & Sons	Cumberland	RI
The Plumber Company LP	Newport	RI
Thermal Energy Inc.	Cranston	RI
Therrien Mechanical Systems	Lincoln	RI
Thibault Plumbing & Heating Inc.	Cranston	RI
Thielsch Engineering	Cranston	RI
Thomas Adamson Electrician	Coventry	RI
Thompson Properties LLC	Barrington	RI
Thumbs Up Plumbing and Drain Clearing	North Smithfield	RI
TJ Billington & Son Contracting	Warwick	RI
TJP Heating	Johnston	RI

Vendor	City	State
TMT Construction	Jamestown	RI
Todd A Desarro	Hope Valley	RI
Todd Campopiano Electrician	North Providence	RI
Tom Jenkins Jr.	Middletown	RI
Tom McGee	North Smithfield	RI
Tom Peters Plumbing & Heating	Milton	RI
Tom Whitaker	Newport	RI
Tomas HVAC	Smithfield	RI
Toner Electric Company	Middletown	RI
Total Comfort Heating & Cooling	Cumberland	RI
Total Construction Services, Inc.	Providence	RI
TPF Electrical Service	Pawtucket	RI
Trac Buildings	Providence	RI
Travers Plumbing & Heating Inc	Portsmouth	RI
TRG Construction LLC	North Kingston	RI
Tri-Town Community Action	North Providence	RI
Tuma Insulations	Warwick	RI
Tyler Steiner HVAC	Scituate	RI
U.G. Nason's Inc.	Middletown	RI
Ultimate Plumbing	Warwick	RI
United Mechanical	Cranston	RI
Universal Contractor Group LLC	Providence	RI
Universal HVAC LLC	NORTH PROVIDENCE	RI
V. Letizia Plumbing & Heating	Providence	RI
Valcourt Heating Inc.	Tiverton	RI
Valley Heating & Cooling	Hope Valley	RI
Valley Repair Inc.	Wyoming	RI
Van's Electric Inc.	Bristol	RI
Vaughn Oil	Smithfield	RI
Vicmir & Sons	Riverside	RI
Victor Allienello	Providence	RI
Viking Electric Inc.	Riverside	RI
Vision Energy Solutions, Inc	Providence	RI
Vivona Plumbing & Heating Inc.	Portsmouth	RI
Vose Hardware	Woonsocket	RI
Wagner Plumbing Services	East Providence	RI
Wakefield Heating Service	South Kingston	RI
Wakefield Plumbing LLC	Middletown	RI
Waldo Plumbing & Heating	Lincoln	RI
Watermark Plumbing LLC	Cranston	RI

Vendor	City	State
Wayne Electric, Inc.	Bristol	RI
Westbay Community Action	Warwick	RI
Wickford Appliance	Pawtucket	RI
Wilkinson Plumbing & Heating LLC	Hope Valley	RI
William J. Riley Plumbing & Heating	Warwick	RI
William N. Harris HVAC Solutions	Barrington	RI
William Rocchio	Coventry	RI
Wojcik Electric Inc	Narragansett	RI
Wood's Heating Service	Providence	RI
Wordell Heating & Cooling LLC	Little Compton	RI
Wright Comfort Solutions Inc.	Coventry	RI
Wyman & Son Electric	Providence	RI
XPT Plumbing LLC	Exeter	RI
Yoakum Septic Services LLC	Smithfield	RI
Zawadski Plumbing	Warwick	RI
Association of Energy Services Professionals	Phoenix	AZ
Cohen Ventures	Oakland	CA
CRM Orbit	San Francisco	CA
Simple Energy Inc.	Miraloma	CA
Tetra Tech Inc.	Pasadena	CA
E Source Companies LLC	Boulder	CO
Televent USA LLC	Fort Collins	CO
ABC Refrigeration	North Stonington	CT
Best Energy	Pawcatuck	CT
Branco Electric	Trumbull	CT
Cameron Hanna	Somers	CT
Craig C. Porter	Dayville	CT
Duncklee Inc.	Stonington	CT
Dynamic Building & Energy (Formerly Uplands Construction Group)	North Stonington	CT
Eagle Industries Inc.	Colchester	CT
Energy Resources	Thomaston	CT
Greentemp Mechanical Services	Groton	CT
JKMUIR LLC	Rocky Hill	CT
John Doyle Plumbing & Heating	Wolcott	CT
Kelly Electric	Jewett City	CT
KENAIR	East Lyme	CT
Lantern Energy, LLC	Norwich	CT
Lourerio Engineering Associates, Inc.	Plainville	CT
MG Heating & Cooling LLC	Branford	CT
Millas Heating & Cooling LLC	Mystic	CT

Vendor	City	State
Santor Electrical Contractor	North Windham	CT
Santoro Plumbing & Well Service	Prospect	CT
Simmons HVAC	Pawcatuck	CT
South Shore Heating & Cooling, Inc.	Pawcatuck	CT
The HDL Company LLC	Lisbon	CT
Thermaxx LLC	West Haven	CT
Tom Bueler	North Stonington	CT
Valley Heating & Cooling Inc.	Jewett City	CT
Viking Supply Company	Norwich	CT
Williams & Associates	North Stonington	CT
Cadeo Group LLC	Washington	DC
Energy Solutions Center	Washington	DC
ICF Resources LLC	Wilmington	DE
AC Wholesalers	Doral	FL
Burton Energy Group LLC	Alpharetta	GA
National Energy Educational Development Need	Manassas	GA
ECOMFORT.COM	Bolingbrook	IL
Frontier Energy Inc.	Chicago	IL
Innerworkings Inc	Chicago	IL
5C Energy (formerly Affordable Building & Weatherization, Inc.)	Attleboro	MA
A & M Electrical Mechanical, Inc.	Fall River	MA
A&M Electric	Fall River	MA
ABE Electrical Installations Company	Cotuit	MA
Action Inc	Fall River	MA
Advanced Energy Services	Hopedale	MA
Advanced Mechanical Solutions	Mansfield	MA
Advanced Plumbing & Heating	Seekonk	MA
Aetna Corp	Cambridge	MA
AGS HVAC Services LLC	Westport	MA
Ahaesy Electric	Fall River	MA
AI3 Architects	Wayland	MA
Air Tight Insulators	New Bedford	MA
Alternative Creative Energy	Blackstone	MA
Alternative Weatherization, Inc.	Fall River	MA
American Plant Maintenance	Woburn	MA
Andelman and Lelek Engineering Inc.	Norwood	MA
Anthony Vieira Iii Heating & Air Conditioning	Attleboro	MA
ARCA Recycling Inc.	Franklin	MA
Attention to Detail Plumbing & Heating	Somerset	MA
Audio Concepts	North Attleboro	MA

Vendor	City	State
Austin Plumbing & Heating	Franklin	MA
B & L Ductless	Swansea	MA
B2Q Associates Inc.	Andover	MA
Baraby Electric	Fall River	MA
Baystate Energy Reduction	Norwood	MA
Beaupre Electric	Assonet	MA
Biello Electric	Fall River	MA
BL Mechanical Inc.	Uxbridge	MA
Bob Costa Plumbing & Heating	Seekonk	MA
Bob's Appliance Repair	Fall River	MA
Botelho Electric	Rehoboth	MA
BRH Electrical Services	Seekonk	MA
Brian Macdonald Plumbing & Heating	Attleboro	MA
Briggs Mechanical	North Attleboro	MA
Bristow Electric Company, Inc.	Attleboro	MA
Bruin Corp.	North Attleboro	MA
Building Science & Construction	Braintree	MA
Caliber Building & Remodeling	Sandwich	MA
Camara's Heating & Air Conditioning Services	Westport	MA
Central Cooling & Heating	Falmouth	MA
Champion Resources	Ipswich	MA
Classic Sheet Metal Heating & Air Conditioning	Swansea	MA
Coastal Electric Inc.	Hanover	MA
Coastal Energy Services	Swansea	MA
Columbus Energies Inc.	Swansea	MA
Complete Recycling Solutions LLC	Fall River	MA
Conservations Services Group	Westborough	MA
Cotti-Johnson HVAC Inc	Taunton	MA
Coughlin & Associates Energy Consulting	Stow	MA
Curt, Kevin R. LLC	Fall River	MA
D & S Electrical Systems	Lakeville	MA
D.B.A Matthews Cedarfield	Warwick	MA
Dalio Electric	Northbridge	MA
Dave LeBlanc Heating & Air Conditioning	Fairhaven	MA
David J. Dionne Electric	Blackstone	MA
Davis Plumbing & Heating LLC	Monson	MA
Deblok Heating & Cooling	East Longmeadow	MA
Delux Plumbing & Heating	Roslindale	MA
Diamond Heating	Blackstone	MA
DMI	Wellesley	MA

Vendor	City	State
DNV GL	Medford	MA
Dominic Ingemi Electrician	Attleboro	MA
DQR Electric	Marlborough	MA
Drolet Electric	North Attleboro	MA
Dube'S Plumbing	Blackstone	MA
E & V Oil Company Inc./Iron Man Heating	Swansea	MA
Efficiency Forward Inc. (DLC)	Medford	MA
Efficient Buildings LLC	Bridgewater	MA
Elder Plumbing & Heating	Hopkinton	MA
Elite Construction Corp	Seekonk	MA
Elite Energy Services	Fall River	MA
Elite Heating & Air Conditioning	Seekonk	MA
Emerson Swan Inc.	Randolph	MA
Enel X	Boston	MA
Energy & Resource Solutions Inc.	North Andover	MA
Energy Efficiency Advisers Inc.	Mendon	MA
Energy Federation Inc.	Westborough	MA
Energy Monster	Worcester	MA
Energyiwise Inc.	Sutton	MA
ENGIE Services US	Norwell	MA
Expandable Sound	East Freetown	MA
Fairbanks Energy Services Inc	Hingham	MA
Farias Home Services	Mansfield	MA
FLM Plumbing & Heating	Seekonk	MA
Fluid Industrial Associates I	Woburn	MA
Forte Electric Inc.	Attleboro	MA
Fortin Electric	New Bedford	MA
Foster Electric	Worcester	MA
Fuseideas	Winchester	MA
G & L Electric Inc.	Bellingham	MA
GM Refrigeration	Fall River	MA
G.H. Electrical Service Company	Attleboro	MA
Germaine Plumbing & Heating	Attleboro	MA
GH Electrical Service	Attleboro	MA
Glynn Electric Inc.	Plymouth	MA
H-I-M Mechanical Systems, Inc.	Bridgewater	MA
Hull Electric	Marblehead	MA
HVAC Experts Heating & Air	Auburn	MA
I.N.O Electric Service	Assonet	MA
IBM Corp	Cambridge	MA

Vendor	City	State
Independent Pipe & Supply Corp	Canton	MA
Insulation 2 Save	Fall River	MA
Insulation R Us	Fall River	MA
Ironman Heating & Cooling	Swansea	MA
J & L Heating and Air	Plainville	MA
J&R Contractors	Fall River	MA
Jay Sheldons Heating	Seekonk	MA
JF Electric	Quincy	MA
John A. Moniz Electrical	Swansea	MA
John McDonough Electrician	Boston	MA
John Ryan Electric	Weymouth	MA
Jouberts Heating & Air Conditioning	Warwick	MA
JR's HVAC Design	Belmont	MA
Lafayette & Cross Co. Inc	Seekonk	MA
Larry's Heating	Rehoboth	MA
Lawrence Air Systems Inc.	Seekonk	MA
Ledoux Electric	Seekonk	MA
Lefevre, Douglas	Taunton	MA
Leiser Corporation	Weston	MA
Lexicon Energy Consulting	Condord	MA
Litemor	Norwood	MA
Lockheed Martin	Burlington	MA
Lussier, Joseph - Lussier Electric Services	Worcester	MA
Machado Plumbing & Heating	Dighton	MA
Magina Electrical	Seekonk	MA
MAM Plumbing	Rehoboth	MA
Marc's Sheet Metal Inc	Assonet	MA
Mazzarella Mechanical	Seabrook	MA
Mike Bell Electric	Seekonk	MA
MN Electric	Marshfield	MA
Modern Heating & A/C Co	Rochester	MA
Motus LLC	Boston	MA
Murphy Electric & Industry Control LLC	Pembroke	MA
MV Electric	Acushnet	MA
National Light Bulb Company	North Easton	MA
Navigant Consulting, Inc.	Boston	MA
New England Safety Systems	Taunton	MA
New England Weatherization, LLC	Attleboro	MA
Next Step Living	Boston	MA
NMR Group Inc	Somerville	MA

Vendor	City	State
Northeast Electrical Service	Bellingham	MA
Northeast Energy Efficiency	Lexington	MA
O.H. Burg Corporation	Stoughton	MA
Oracle America	Cambridge	MA
Pacheco Plumbing & Heating	Fall River	MA
Pariseau Electric, Inc.	Seekonk	MA
Patriot Sheet Metal HVAC	Seekonk	MA
Paul Elder Plumbing & Heating Co	Hopkinton	MA
Pelland Electrical Contractors	Chicopee	MA
Peregrine Energy Group	Boston	MA
Plumbers Supply Co	New Bedford	MA
Prism Energy Services	Quincy	MA
Quality Air Metals Inc.	Holbrook	MA
Quality Energies	Rehoboth	MA
R R Services	Swansea	MA
RALCO Electric Inc.	Westport	MA
Ramos Electric	Holyoke	MA
Raymond D. Melanson Electric	Swansea	MA
Rebello Weatherization Inc.	Swansea	MA
Resendes Electric	Swansea	MA
Rethinking Power Management	Boston	MA
Retrofit Insulation	Fall River	MA
Reynolds, Jeffrey Dba	Westport	MA
Rich May PC	Boston	MA
Rickard & Sons Plumbing & Heating	Seekonk	MA
Ritchie's Insulation	Westport	MA
River Energy Consultants	Fall River	MA
River St Heating & Cooling	Plymouth	MA
Robinson & Cole LLP	Boston	MA
Roia, Jason Electrica	Fall River	MA
Sean Walsh	Kingston	MA
Seekonk Supply Inc.	Rehoboth	MA
Shane LaCroix	Seekonk	MA
Simon's Supply Company	Fall River	MA
South Coast Alternative Power Solutions	Acushnet	MA
St. George, Paul R.	Dighton	MA
Stateline Fuel & Burner	Seekonk	MA
Steam Trap Systems	Amesbury	MA
Steel Hill Plumbing & Heating Inc.	Rockland	MA
STP Plumbing & Heating	Blackstone	MA

Vendor	City	State
Suburban Heating & Cooling Services	Swansea	MA
Superior Energy Solutions, Inc.	Swansea	MA
Synapse Energy Econ. Inc.	Cambridge	MA
T & J Heating, Air Conditioning and Plumbing	Bellingham	MA
Tangney Electric Co	Worcester	MA
Tappen Plumbing & Heating	Fall River	MA
TC Building	Medfield	MA
The Cadmus Group LLC	Boston	MA
The Energy Efficiency Group	Norwood	MA
THE Heating Man	Rehoboth	MA
Theroux Mechanical	South Attleboro	MA
TNZ Energy Consulting Inc.	Stoughton	MA
Total Comfort Heating & Cooling Inc.	Mansfield	MA
TRC Environmental Corp.	Boston	MA
Triangle Refrigeration	Fall River	MA
Triple B Plumbing Inc.	Seekonk	MA
Trust Energy Solutions	Marlborough	MA
United Refrigeration	Woburn	MA
Utility Energy Inc.	Fall River	MA
UTS Energy Engineering LLC	Quincy	MA
Veolia North America	Boston	MA
Victory Heating, Air Conditioning, Plumbing	Bellingham	MA
Walsh Heating & Air Conditioning	Swansea	MA
Wipro Ltd	Quincy	MA
WM A Hurley Plumbing & Heating Inc.	Springfield	MA
WNUK Plumbing LLC	East Longmeadow	MA
Worcester Electric Association	Worcester	MA
Young Electrical Service	Taunton	MA
Your Plumber Inc.	Norton	MA
Enerwise Global Technologies Inc.	Baltimore	MD
Naomi Mermin Consulting	Portland	ME
G L Smith Heating & Cooling	St. Joseph	MO
Hussmann Corp.	Bridgeton	MO
APEX Analytics	Greensboro	NC
Coastal Lighting LLC	Wilmington	NC
KT&T Distributors	Nashua	NH
Precision Plumbing LLC	Derry	NH
Shamrocks Plumbing	Pelham	NH
Clear Energy LLC	Bloomfield	NJ
CMC Energy Services Inc.	Cranbury	NJ

Vendor	City	State
Dodge Data & Analytics LLC	Hamilton	NJ
Ideas Agency Inc	Blairstown	NJ
SHI International Corp.	Somerset	NJ
Bourque Mechanical System	Rensselaer	NY
Customertimes	New York	NY
EnergyHub Inc.	Brooklyn	NY
Eric Mower & Associates	Syracuse	NY
Homeserve USA	New York	NY
Niagara Mohawk Power Corp	Syracuse	NY
Ram Marketing	Saint James	NY
Rensselaer Polytechnic Institute	Troy	NY
Trane Inc.	Plainview	NY
Questline Inc	Columbus	OH
Cascade Energy Inc.	Portland	OR
Aramark Refreshment Service	Philadelphia	PA
Home Performance Coalition Inc.	Moon Township	PA
One Hour Heating & A/C	Lancaster	PA
Pontoon Solutions Inc.	Pittsburgh	PA
H&K International Inc.	Mesquite	TX
Lopez Negrete Communication	Houston	TX
NexRev Inc.	Plano	TX
Protect America	Austin	TX
Smith System Driver Improvement	Arlington	TX
Compressed Air Challenge	Alexandria	VA
New Navy Exchange	VA Beach	VA
Optimal Energy Inc.	Hinesburg	VT
New Buildings Institute Inc.	White Salmon	WA
Northwest Energy Efficiency Council	Seattle	WA
Slipstream Group Inc.	Madison	WI

guidehouse.com